

3RD GRADE

- 34174—Fractions as Decimals
- 34187—Decimals
- 34190—Compare & Order Decimals

4TH GRADE

- 40948—Count Money & Make Change
- 40956—Add & Subtract Money
- 40959—Multiply & Divide Money
- 41017—Compare & Order Decimals
- 41022—Fractions as Decimals
- 41025—Add & Subtract Decimals

5TH GRADE

- 56292—Fractions & Decimals
- 56293—Decimals on a Number Line
- 56294—Comparing Decimals
- 56295—Add & Subtract Decimals
- 56296—Multiply & Divide by Powers of Ten
- 56297—Multiply Decimals by Decimals
- 56299—Fractions, Decimals, & Percents

6TH GRADE

- 67155—Division & Decimal Remainders
- 67162—Convert Between Decimal – Fraction - Percent
- 67174—Multiply Decimals
- 67175—Divide Decimals
- 67187—Fractions & Decimals
- 67188—Terminating & Repeating Decimals

7TH GRADE

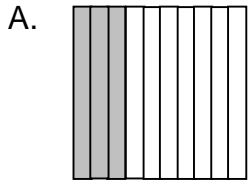
- 76244—Compare & Order Decimals
- 76245—Multiply Decimal Numbers
- 76246-76247—Divide Decimal Numbers

8TH GRADE

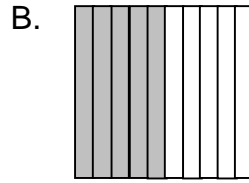
- 8070-8112—Estimating by Rounding – Decimals
- 8071-8113—Add-Subtract Decimals & Fractions
- 8072-8114—Percents – Fractions – Decimals

Fractions as Decimals

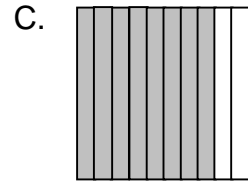
Write the fraction and decimal that represent the shaded part.



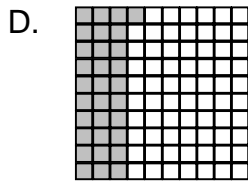
$$\frac{3}{10} \quad \mathbf{0.3}$$



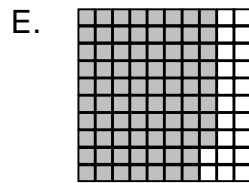
$$\frac{5}{10} \quad \mathbf{0.5}$$



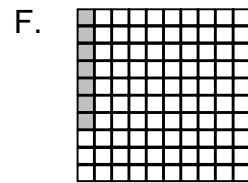
$$\frac{8}{10} \quad \mathbf{0.8}$$



$$\frac{31}{100} \quad \mathbf{0.31}$$



$$\frac{78}{100} \quad \mathbf{0.78}$$



$$\frac{7}{100} \quad \mathbf{0.07}$$

Write the decimal form of each fraction.

G. $\frac{2}{10} =$ $\mathbf{0.2}$

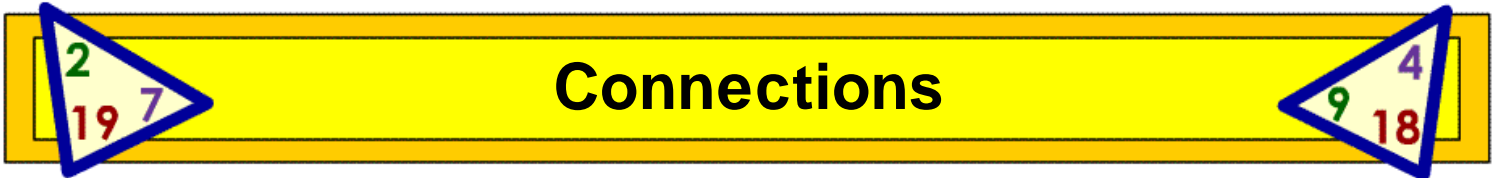
H. $\frac{43}{100} =$ $\mathbf{0.43}$

I. $\frac{9}{10} =$ $\mathbf{0.9}$

J. $\frac{81}{100} =$ $\mathbf{0.81}$

K. $\frac{1}{10} =$ $\mathbf{0.1}$

L. $\frac{5}{100} =$ $\mathbf{0.05}$

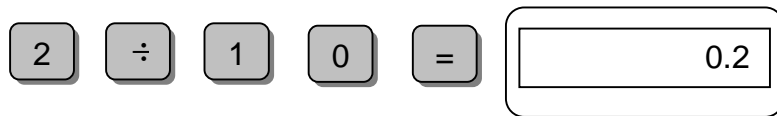


Today I learned:

Exploring with Calculators

The decimal equivalent of a fraction can be found by dividing the numerator by the denominator.

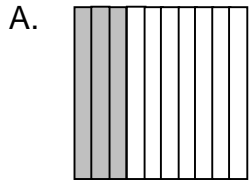
For example, to find the decimal equivalent of the fraction $\frac{2}{10}$, divide 2 by 10. The end result is 0.2. Use a calculator to find the decimal equivalents of the fractions in the table.

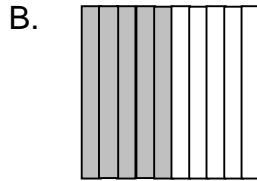


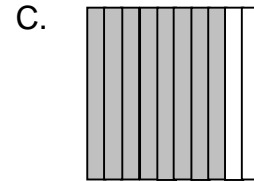
Fraction	Decimal Equivalent
$\frac{3}{4}$	
$\frac{2}{5}$	
$\frac{5}{8}$	
$\frac{1}{4}$	
$\frac{2}{3}$	
$\frac{3}{6}$	
$\frac{3}{8}$	
$\frac{1}{2}$	
$\frac{5}{5}$	

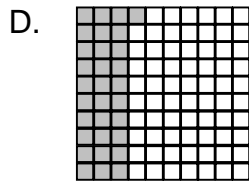
Fractions as Decimals

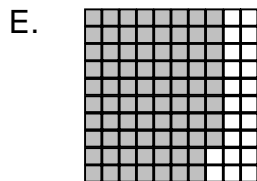
Write the fraction and decimal that represent the shaded part.

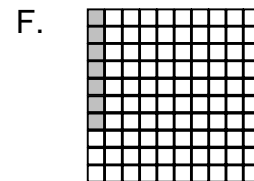












Write the decimal form of each fraction.

G. $\frac{2}{10} =$ _____

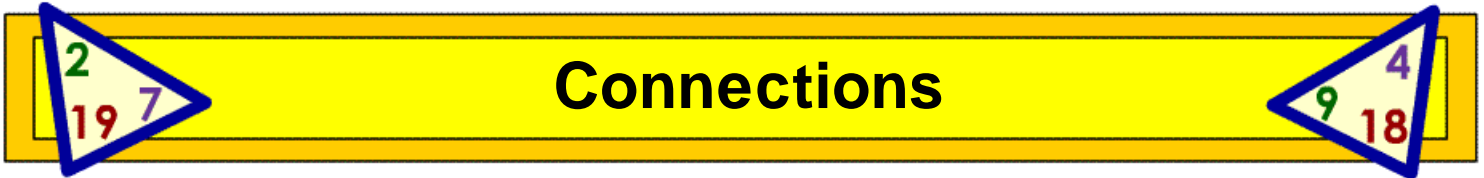
H. $\frac{43}{100} =$ _____

I. $\frac{9}{10} =$ _____

J. $\frac{81}{100} =$ _____

K. $\frac{1}{10} =$ _____

L. $\frac{5}{100} =$ _____

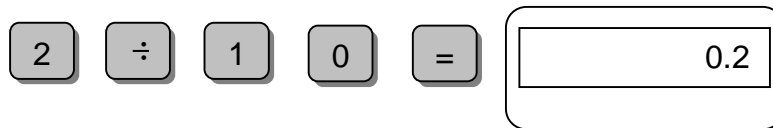


Today I learned:

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The decimal equivalent of a fraction can be found by dividing the numerator by the denominator.

For example, to find the decimal equivalent of the fraction $\frac{2}{10}$, divide 2 by 10. The end result is 0.2. Use a calculator to find the decimal equivalents of the fractions in the table.



Fraction	Decimal Equivalent
$\frac{3}{4}$	
$\frac{2}{5}$	
$\frac{5}{8}$	
$\frac{1}{4}$	
$\frac{2}{3}$	
$\frac{3}{6}$	
$\frac{3}{8}$	
$\frac{1}{2}$	
$\frac{5}{5}$	

Naming Decimals

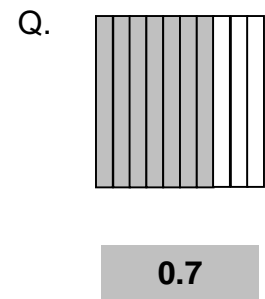
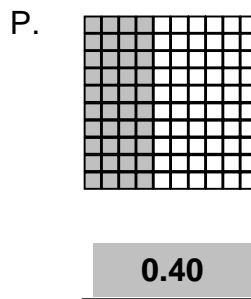
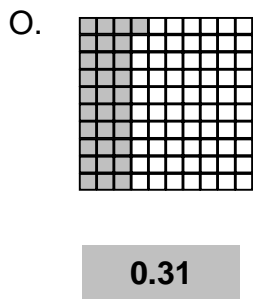
Write the decimal number of each word name.

- | | |
|---------------------------|-------------|
| A. two tenths | <u>0.2</u> |
| B. nine tenths | <u>0.9</u> |
| C. twenty-five hundredths | <u>0.25</u> |
| D. seventy-two hundredths | <u>0.72</u> |
| E. one tenth | <u>0.1</u> |
| F. eight hundredths | <u>0.08</u> |
| G. fifty hundredths | <u>0.50</u> |
| H. sixty-three hundredths | <u>0.63</u> |

Write the value of the underlined digit.

- | | | |
|----------------------------------|-------------------------------------|-------------------------------------|
| I. 0. <u>4</u> 5 <u>4 tenths</u> | J. 0.6 <u>7</u> <u>7 hundredths</u> | K. 0. <u>9</u> 0 <u>9 tenths</u> |
| L. 0. <u>8</u> 8 <u>8 tenths</u> | M. 0.0 <u>2</u> <u>2 hundredths</u> | N. 0.3 <u>7</u> <u>7 hundredths</u> |

Write the decimal name for each shaded part.



2
19
7

Naming Decimals

4
18
9

Shade the following hundredths bar as follows:

0.25 red 0.30 blue 0.16 green 0.24 yellow

Arrangement of shaded colors may vary.

R	R	R	B	B	B	G	G	Y	Y
R	R	R	B	B	B	G	Y	Y	Y
R	R	R	B	B	B	G	Y	Y	Y
R	R	R	B	B	B	G	Y	Y	Y
R	R	R	B	B	B	G	Y	Y	Y
R	R	B	B	B	G	G	Y	Y	
R	R	B	B	B	G	G	Y	Y	
R	R	B	B	B	G	G	Y	Y	
R	R	B	B	B	G	G	Y	Y	
R	R	B	B	B	G	G	Y	Y	

R. What decimal part of the square is not shaded?

0.05

S. What decimal part of the square is shaded blue or red?

0.55

T. What decimal part of the square is shaded yellow or green?

0.40



Naming Decimals



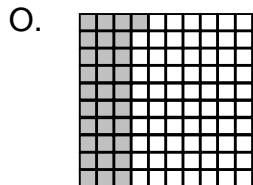
Write the decimal number of each word name.

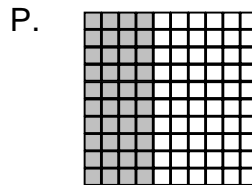
- A. two tenths _____ 0.2 _____
- B. nine tenths _____
- C. twenty-five hundredths _____
- D. seventy-two hundredths _____
- E. one tenth _____
- F. eight hundredths _____
- G. fifty hundredths _____
- H. sixty-three hundredths _____

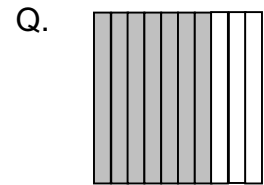
Write the value of the underlined digit.

- I. 0.45 4 tenths _____
- J. 0.67 _____
- K. 0.90 _____
- L. 0.88 _____
- M. 0.02 _____
- N. 0.37 _____

Write the decimal name for each shaded part.



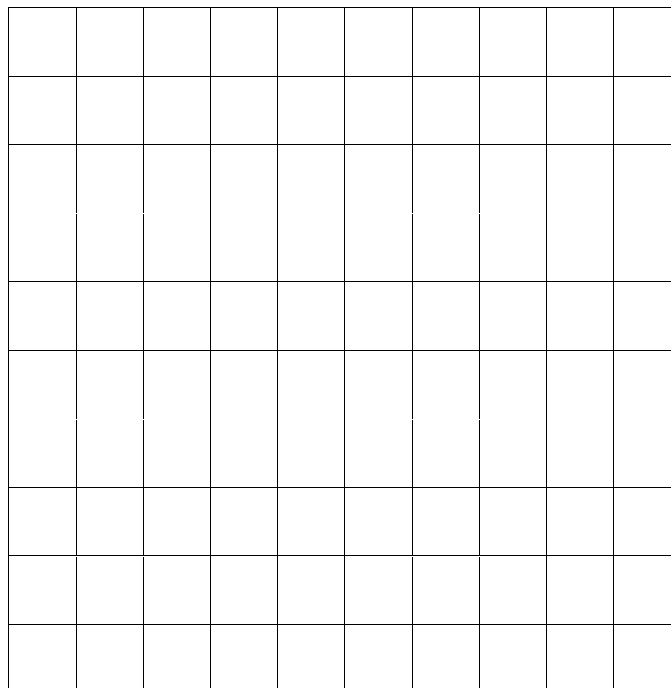




Naming Decimals

Shade the following hundredths bar as follows:

0.25 red 0.30 blue 0.16 green 0.24 yellow



R. What decimal part of the square is not shaded? _____

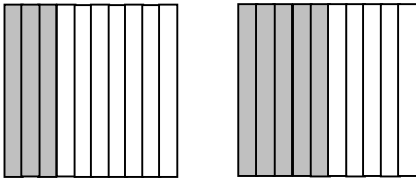
S. What decimal part of the square is shaded blue and red? _____

T. What decimal part of the square is shaded yellow and green? _____

Compare and Order Decimals

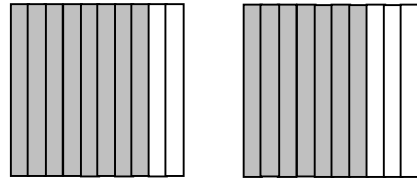
Write a number sentence to show each comparison. Use the symbols $<$, $>$, or $=$.

A.



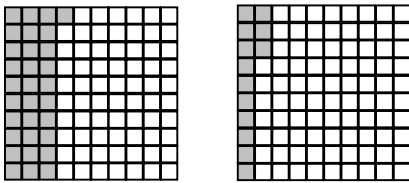
$0.3 < 0.5$

B.



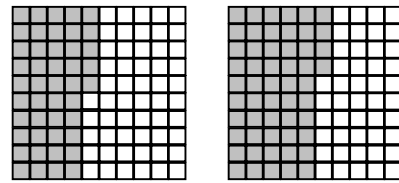
$0.8 > 0.7$

C.



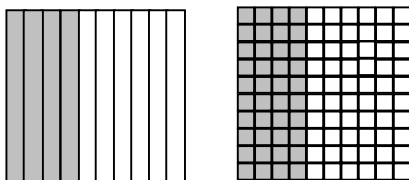
$0.31 > 0.13$

D.



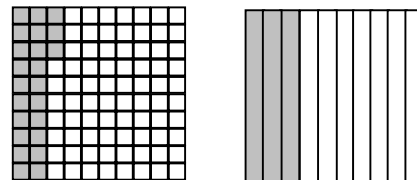
$0.45 < 0.54$

E.




$0.4 = 0.40$

F.



$0.23 < 0.3$



Compare and Order Decimals

Compare. Write $<$, $>$, or $=$ to make each number sentence true.

G. $0.45 < 0.6$

H. $0.80 = 0.8$

I. $0.21 > 0.14$

J. $0.37 < 0.99$

K. $0.1 > 0.09$

L. $0.7 = 0.70$

Order the decimals from least to greatest.

M. 0.4, 0.7, 0.1, 0.9

0.1, 0.4, 0.7, 0.9

N. 0.31, 0.45, 0.16, 0.20

0.16, 0.20, 0.31, 0.45

O. 0.23, 0.5, 0.16, 0.9

0.16, 0.23, 0.5, 0.9

P. 0.3, 0.89, 0.7, 0.17

0.17, 0.3, 0.7, 0.89

Solve

Q. At practice, Linda ran 0.45 of a mile, Kelsey ran 0.9 of a mile, and Jim ran 0.4 of a mile.

Who ran the furthest distance?

Kelsey

Who ran the shortest distance?

Jim



Today I learned:

Decimal War

Object: To collect all the playing cards

Set up: Carefully cut out the 28 playing cards. If possible, mount the cards on 3" x 5" index cards. Shuffle the cards. Deal all of the cards to the players.

Playing: **Decimal War is a card game for 2-4 players.** Without looking, each player flips a card over to reveal its value. The player with the greatest decimal wins the cards in play. If two or more players have the greatest decimal, those players each place a card facedown and one more card faceup. The player with the greatest faceup card wins all the cards in play. If a player runs out of cards, that player is out of the game. Play continues until 1 player has all of the cards.

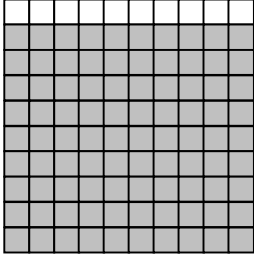
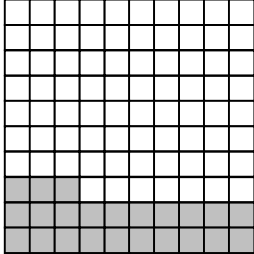
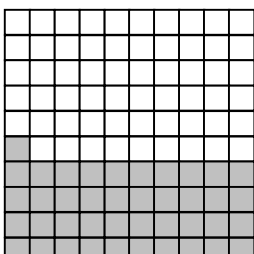
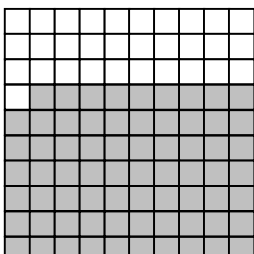
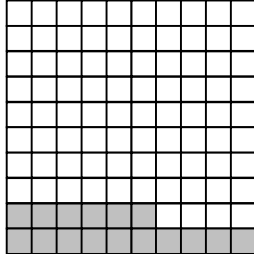
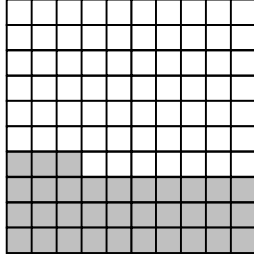
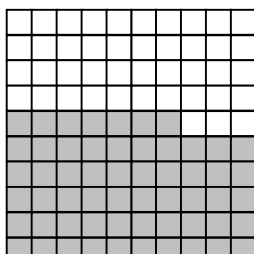
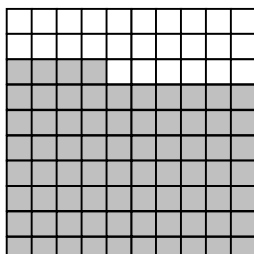
Winner: The winner is the player who collects the entire deck of playing cards.

0.1		0.1	0.2		0.2
0.3		0.3	0.4		0.4

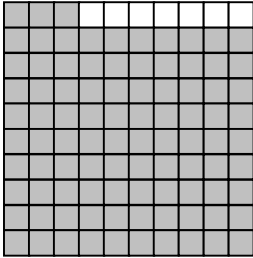
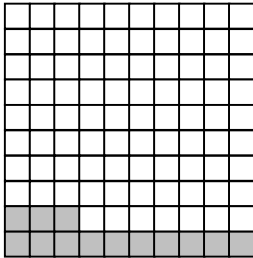
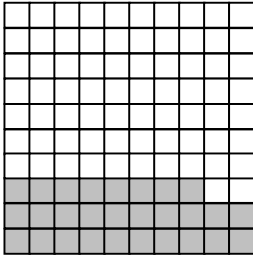
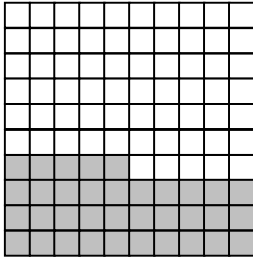
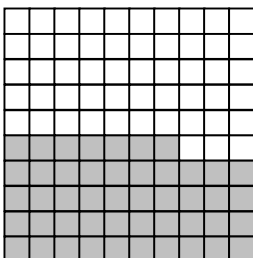
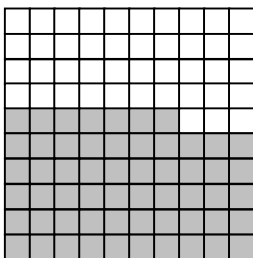
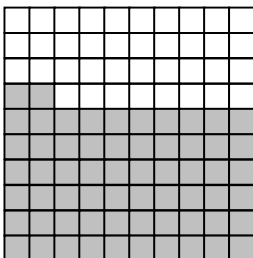
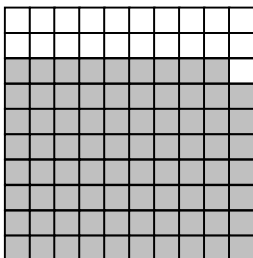
Connections

0.5	0.5	0.6	0.6
0.7	0.7	0.8	0.8
0.9	0.9	0.20	0.20
0.30	0.30	0.40	0.40

Connections

0.90 	0.23 	0.41 	0.69 	0.16 	0.33 	0.57 	0.74 
---	--	---	---	--	---	--	--

Connections

0.93		0.93	0.13		0.13
0.28		0.28	0.35		0.35
0.47		0.47	0.57		0.57
0.62		0.62	0.79		0.79



Compare. Write $<$, $>$, or $=$ to make each number sentence true.

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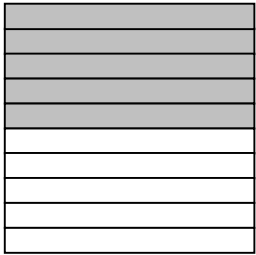
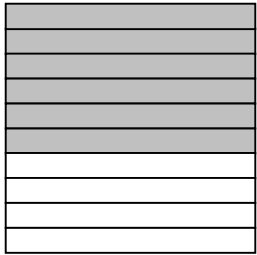
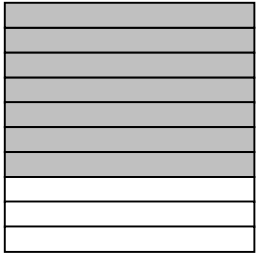
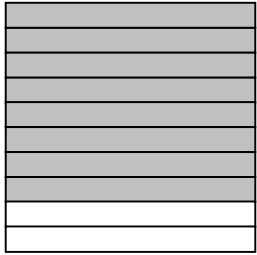
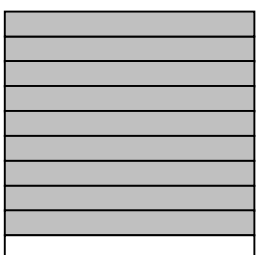
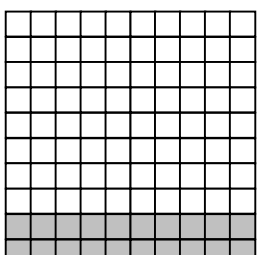
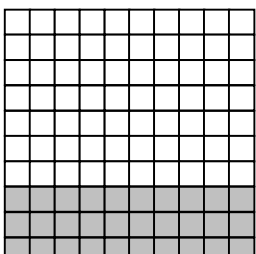
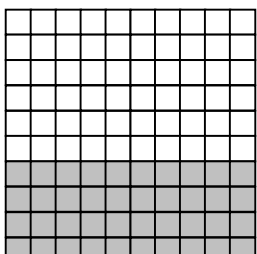
Set up: Carefully cut out the 28 playing cards. If possible, mount the cards on 3" x 5" index cards. Shuffle the cards. Deal all of the cards to the players.

Playing: **Decimal War is a card game for 2-4 players.** Without looking, each player flips a card over to reveal its value. The player with the greatest decimal wins the cards in play. If two or more players have the greatest decimal, those players each place a card facedown and one more card faceup. The player with the greatest faceup card wins all the cards in play. If a player runs out of cards, that player is out of the game. Play continues until 1 player has all of the cards.

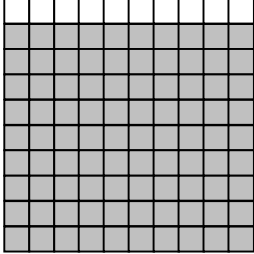
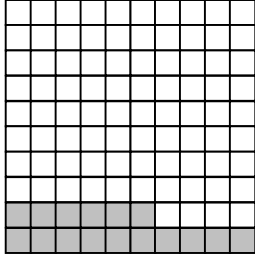
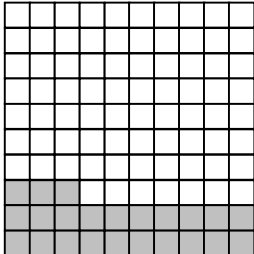
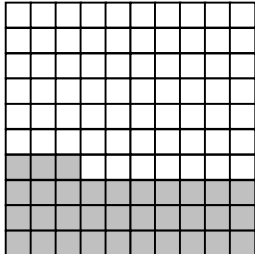
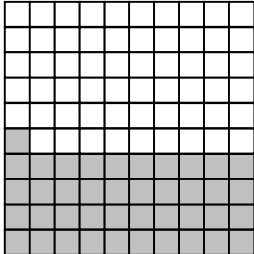
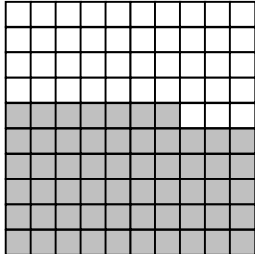
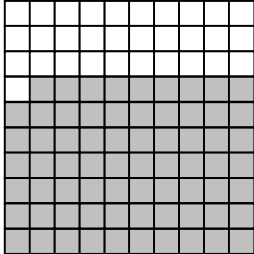
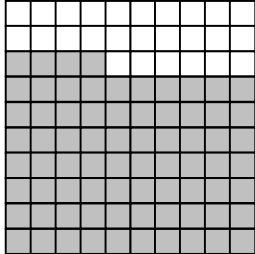
Winner: The winner is the player who collects the entire deck of playing cards.

0.1		0.1	0.2		0.2
0.3		0.3	0.4		0.4

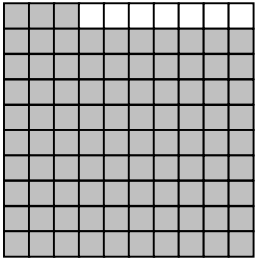
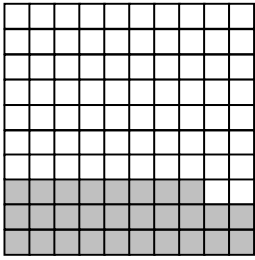
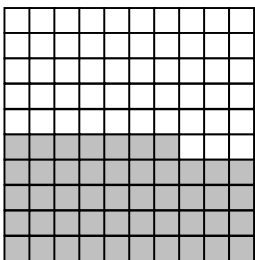
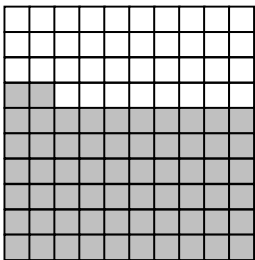
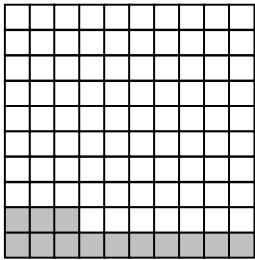
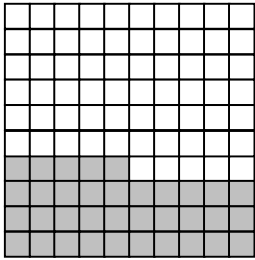
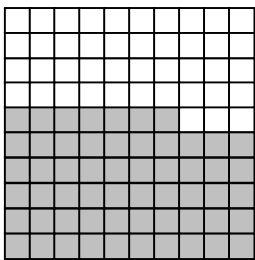
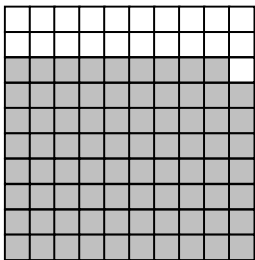
Connections

0.5 	0.6 
0.7 	0.8 
0.9 	0.20 
0.30 	0.40 

Connections

0.90		0.90	0.16		0.16
0.23		0.23	0.33		0.33
0.41		0.41	0.57		0.57
0.69		0.69	0.74		0.74

Connections

0.93 	0.28 	0.47 	0.62 	0.13 	0.35 	0.57 	0.79 
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Count Money and Make Change

Draw a set of bills and coins for each amount given.

A.	\$25.35	\$14.82
	<p>Answers will vary.</p> <p>Possible answer: 1 twenty-dollar bill, 1 five-dollar bill, 1 quarter, and 1 dime</p>	<p>Answers will vary.</p> <p>Possible answer: 1 ten-dollar bill, 4 one-dollar bills, 3 quarters, 1 nickel, and 2 pennies</p>
B.	\$48.91	\$73.57
	<p>Answers will vary.</p> <p>Possible answer: 2 twenty-dollar bills, 1 five-dollar bill, 3 one-dollar bills, 3 quarters, 1 dime, 1 nickel, and 1 penny</p>	<p>Answers will vary.</p> <p>Possible answer: 1 fifty-dollar bill, 1 twenty-dollar bill, 3 one-dollar bills, 2 quarters, 1 nickel and 2 pennies</p>
C.	\$33.75	\$85.23
	<p>Answers will vary.</p> <p>Possible answer: 1 twenty-dollar bill, 1 ten-dollar bill, 3 one-dollar bills, and 3 quarters</p>	<p>Answers will vary.</p> <p>Possible answer: 1 fifty-dollar bill, 3 ten-dollar bills, 1 five-dollar bill, 2 dimes, and 3 pennies</p>



Solve.

Margaret bought 4 CDs for \$52.35. She gave the cashier 3 twenty-dollar bills. How much change should she receive?

Margaret received \$7.65 in change.

$$3 \times \$20.00 = \$60.00$$
$$\$60.00 - \$52.35 = \$7.65$$

Victor bought a stereo for \$74.89. He gave the cashier 2 fifty-dollar bills. How much change should he receive?

Victor received \$25.11 in change.

$$2 \times \$50.00 = \$100.00$$
$$\$100.00 - \$74.89 = \$25.11$$

Dolores bought a dress for \$47.65. She received \$32.35 in change. How much money did she give the cashier?

Dolores gave the cashier \$80.00.

$$\$47.65 + \$32.35 = \$80.00$$

Philip bought 5 video games for \$85.40. He received \$9.60 in change. How much money did he give the cashier?

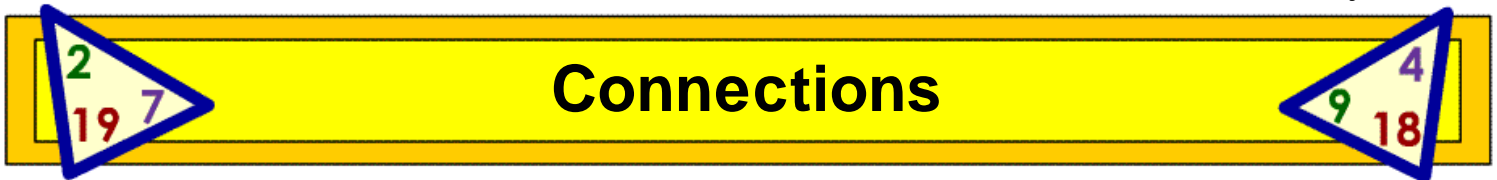
Philip gave the cashier \$95.00.

$$\$85.40 + \$9.60 = \$95.00$$

Muriel bought 3 pairs of jeans. She gave the cashier 1 fifty-dollar bill and 2 twenty-dollar bills. She received \$8.24 in change. How much did she pay for the jeans?

Muriel paid \$81.76 for the jeans.

$$\$50.00 + \$20.00 + \$20.00 = \$90.00$$
$$\$90.00 - \$8.24 = \$81.76$$



Today I learned:

Did You Know

- The Egyptians were the first to use money.
- Beads were used to purchase Manhattan Island.
- Before money, people used the barter system.
- Early settlers in America used shells as money.
- There has been no silver metal in dimes and quarters since the 1960s.
- Nickels minted from 1942 to 1945 contained only copper, silver, and manganese, but no nickel.
- Before machines made coins, they were not all perfectly round.
- The inscription “In God We Trust” was first used on coins during the Civil War.

Visit the U.S. Mint’s Web site for kids to learn more fun facts about money. This site also includes games, puzzles, and cartoons.

Name _____ Date _____

Number Sense
Money

Count Money and Make Change

Draw a set of bills and coins for each amount given.

A.	\$25.35	\$14.82
B.	\$48.91	\$73.57
C.	\$33.75	\$85.23

Name _____ Date _____

Number Sense
Money



Solve.

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2
19 7

Add and Subtract Money

4
9 18

Find the sum or difference.

$$\begin{array}{r} \text{A. } \$38.27 \\ + 19.72 \\ \hline \mathbf{\$57.99} \end{array}$$

$$\begin{array}{r} \$29.89 \\ - 11.05 \\ \hline \mathbf{\$18.84} \end{array}$$

$$\begin{array}{r} \text{B. } \$65.80 \\ + 31.62 \\ \hline \mathbf{\$97.42} \end{array}$$

$$\begin{array}{r} \$82.75 \\ - 51.09 \\ \hline \mathbf{\$31.66} \end{array}$$

$$\begin{array}{r} \text{C. } \$45.20 \\ + 38.45 \\ \hline \mathbf{\$83.65} \end{array}$$

$$\begin{array}{r} \$60.88 \\ - 5.73 \\ \hline \mathbf{\$55.15} \end{array}$$

Use the items on the right to answer the following questions.

- D. If you pay for the sweater with a fifty-dollar bill, how much change should you receive?

You should receive \$14.05 in change.

$$\mathbf{\$50.00 - \$35.95 = \$14.05}$$

- E. If you buy the shoes and the basketball, what is the total price?

The total price is \$66.00

$$\mathbf{\$45.20 + \$20.80 = \$66.00}$$

- F. If you buy the sweater and the shoes with a hundred-dollar bill, how much change should you receive?

You should receive \$18.85 in change.

$$\mathbf{\$35.95 + \$45.20 = \$81.15}$$

$$\mathbf{\$100.00 - \$81.15 = \$18.85}$$



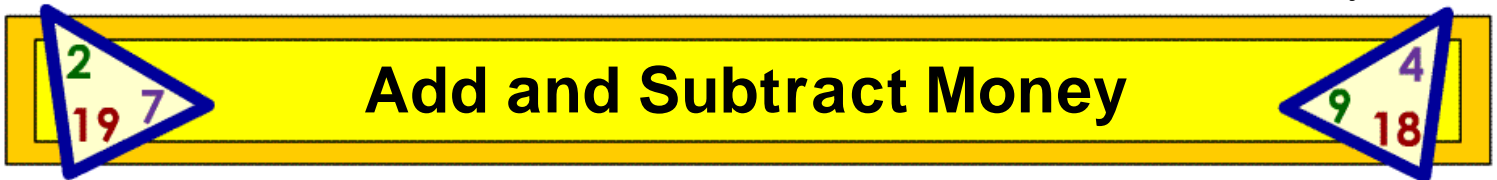
\$35.95



\$45.20



\$20.80



Solve.

- G. Bernice is purchasing 3 items that cost a total of \$67.38. The first item is \$21.06. The second item is \$8.43 more than the first. What is the price of the third item?

The price of the third item is \$16.83.

$$\text{Item 1} = \$21.06$$

$$\text{Item 2} = \$21.06 + \$8.43 = \$29.49$$

$$\text{Item 1} + \text{Item 2} = \$21.06 + \$29.49 = \$50.55$$

$$\text{Item 3} = \$67.38 - \$50.55 = \$16.83$$

- H. Monique purchased a pair of shoes for \$39.45. She used a fifty-dollar bill to pay for it. How much change should she receive? Which bills and coins will the sales clerk most likely give her?

The sales clerk will most likely give her 1 ten-dollar bill, 2 quarters, and 1 nickel.

$$\$50.00 - \$39.45 = \$10.55$$

$$\$10.00 + \$0.25 + \$0.25 + \$0.05 = \$10.55$$

- I. Burnaby paid for his purchase with a hundred-dollar bill. He received 2 twenty-dollar bills, 2 quarters, 1 dime and 2 pennies in change. What was the price of the item he purchased?

The price of the item he purchased was \$59.38.

$$\$20.00 + \$20.00 + \$0.25 + \$0.25 + \$0.10 + \$0.01 + \$0.01 = \$40.62$$

$$\$100.00 - \$40.62 = \$59.38$$

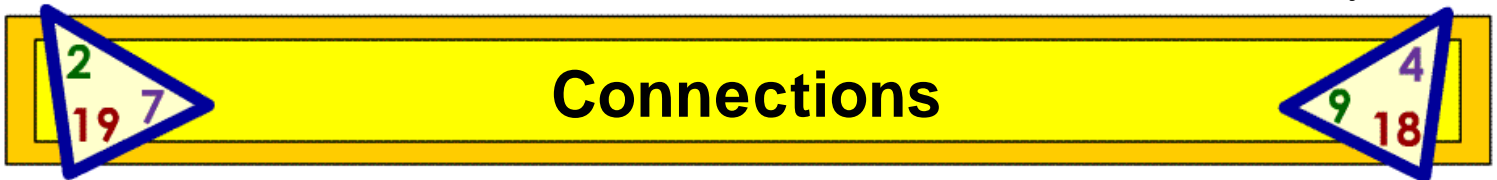
- J. Marie used 4 bills and 3 coins to pay for an item that costs \$76.57. She received \$4.03 in change. Which bills and coins did she use to pay for the item?

Marie used 1 fifty-dollar bill, 1 twenty-dollar bill, 2 five-dollar bills, 2 quarters, and 1 dime to pay for the item.

$$\$76.57 + \$4.03 = \$80.60$$

$$\$50.00 + \$20.00 + \$5.00 + \$5.00 + \$0.25 + \$0.25 + \$0.10 = \$80.60$$

note: Other combinations are possible.



Today I learned:

Just for Fun

Write your name and the names of your family members on a piece of paper. Write the value of each letter using the chart, and then answer the questions below.

A = \$1.00	H = \$4.50	O = \$8.00	V = \$11.50
B = \$1.50	I = \$5.00	P = \$8.50	W = \$12.00
C = \$2.00	J = \$5.50	Q = \$9.00	X = \$12.50
D = \$2.50	K = \$6.00	R = \$9.50	Y = \$13.00
E = \$3.00	L = \$6.50	S = \$10.00	Z = \$13.50
F = \$3.50	M = \$7.00	T = \$10.50	
G = \$4.00	N = \$7.50	U = \$11.00	

What is the value of your name?

What is the difference between the most and the least valuable names in your family?

Does the number of letters in a name affect its value? Why or why not?

Suggested Reading

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2
19 7**Add and Subtract Money**4
9 18**Find the sum or difference.**

A. $\begin{array}{r} \$38.27 \\ + 19.72 \\ \hline \end{array}$

$\begin{array}{r} \$29.89 \\ - 11.05 \\ \hline \end{array}$

B. $\begin{array}{r} \$65.80 \\ + 31.62 \\ \hline \end{array}$

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Use the items on the right to answer the following questions.

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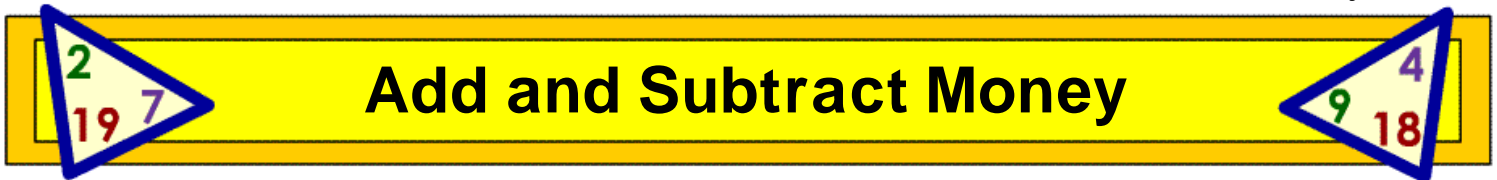


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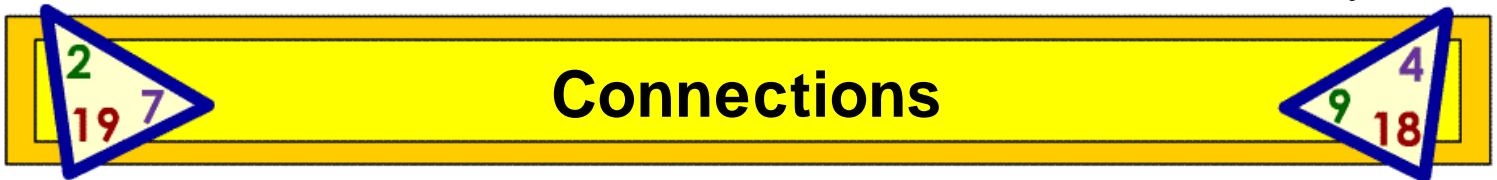
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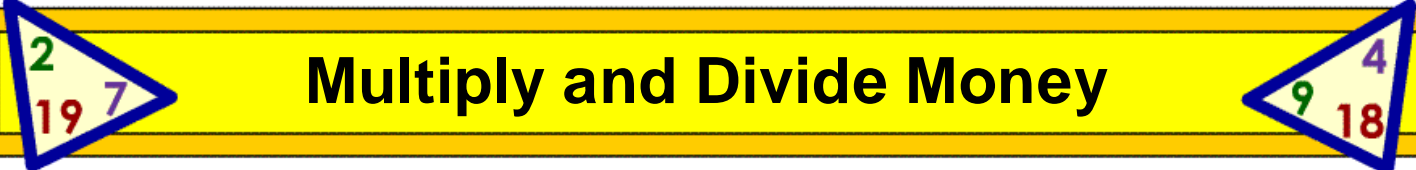
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Multiply and Divide Money

Find the product.

$$\begin{array}{r} \$20.74 \\ \times \quad 8 \\ \hline \end{array}$$

\$165.92

$$\begin{array}{r} \$17.90 \\ \times \quad 4 \\ \hline \end{array}$$

\$71.60

$$\begin{array}{r} \$61.85 \\ \times \quad 7 \\ \hline \end{array}$$

\$432.95

$$\begin{array}{r} \$45.05 \\ \times \quad 3 \\ \hline \end{array}$$

\$135.15

$$\begin{array}{r} \$78.32 \\ \times \quad 5 \\ \hline \end{array}$$

\$391.60

$$\begin{array}{r} \$53.60 \\ \times \quad 6 \\ \hline \end{array}$$

\$321.60

Find the quotient.

$$\begin{array}{r} \underline{\$14.00} \\ 6 \overline{) \$84.00} \end{array}$$

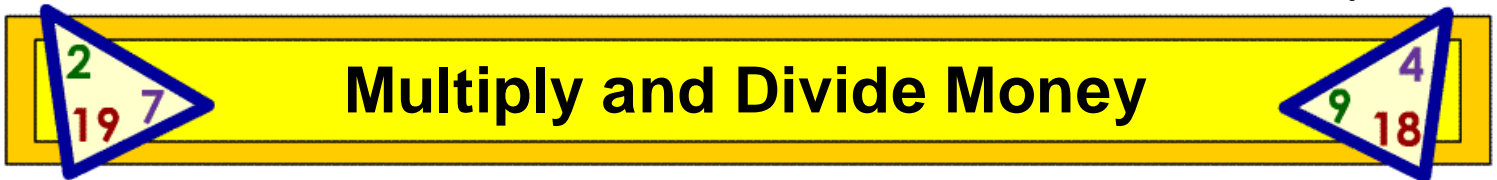
$$\begin{array}{r} \underline{\$ 7.00} \\ 8 \overline{) \$56.00} \end{array}$$

$$\begin{array}{r} \underline{\$31.00} \\ 3 \overline{) \$93.00} \end{array}$$

$$\begin{array}{r} \underline{\$ 9.00} \\ 9 \overline{) \$81.00} \end{array}$$

$$\begin{array}{r} \underline{\$18.00} \\ 4 \overline{) \$72.00} \end{array}$$

$$\begin{array}{r} \underline{\$32.00} \\ 2 \overline{) \$64.00} \end{array}$$



Solve.

- A. At the mall, Maria purchased 5 CD's that each cost \$10.65. If she had \$90 before the purchase, how much money is left?

Maria has \$36.75 left.

$$\$10.65 \times 5 = \$53.25$$

$$\$90.00 - \$53.25 = \$36.75$$

- B. Mark earns \$250 per week working at the mall. If he works 25 hours a week, how much does Mark earn per hour?

Mark earns \$10.00 per hour.

$$\$250.00 \div 25 = \$10.00$$

- C. The post office charges 37¢ for the first ounce shipped and 20¢ for each additional ounce. How much does it cost to ship a package that weighs 15 ounces?

It costs \$3.17 to ship a package that weighs 15 ounces.

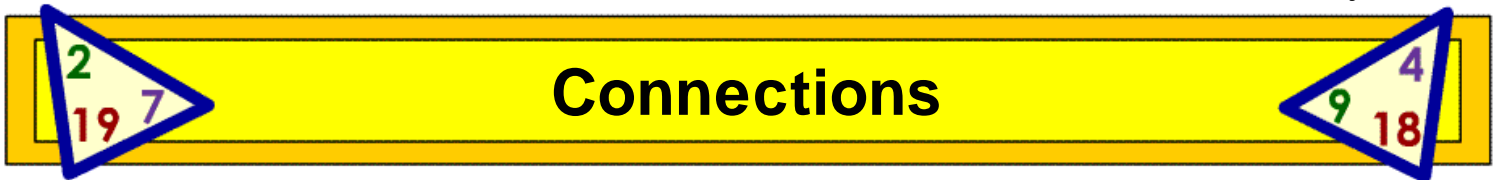
$$20¢ \times 14 = 280¢$$

$$37¢ + 280¢ = 317¢ = \$3.17$$

- D. Carlos sold 86 boxes of candy for a total of \$258.00. What was the price of one box of candy?

The price of one box of candy was \$3.00.

$$\$258.00 \div 86 = \$3.00$$



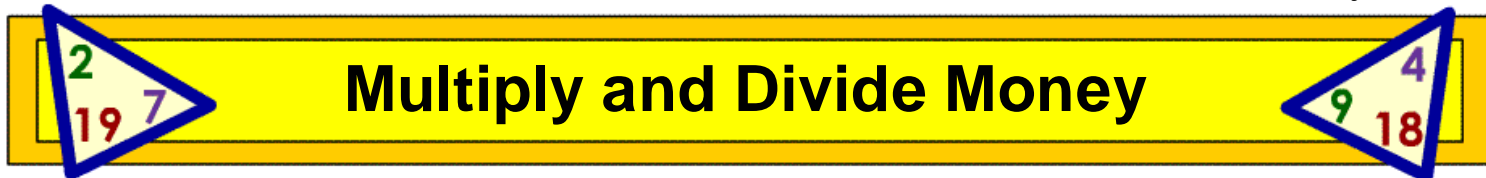
Today I learned:

Did You Know

- If you had 10 billion one-dollar bills and spent one bill every second of every day, it would take 317 years to spend all the bills.
- If you used one-dollar bills, \$1,000,000 would weigh more than a ton.
- In 1998, more than 10 billion pennies were made.
- Martha Washington is the only woman whose portrait has appeared on U.S. paper money. It appeared on the face of the \$1 Silver Certificate of 1886 and 1891, and the back of the \$1 Silver Certificate of 1896.
- The Independence Hall clock that is on the back of the \$100 bill is set to approximately 4:10.

Source: U.S. Treasury, Bureau of Engraving and Printing

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Find the quotient.

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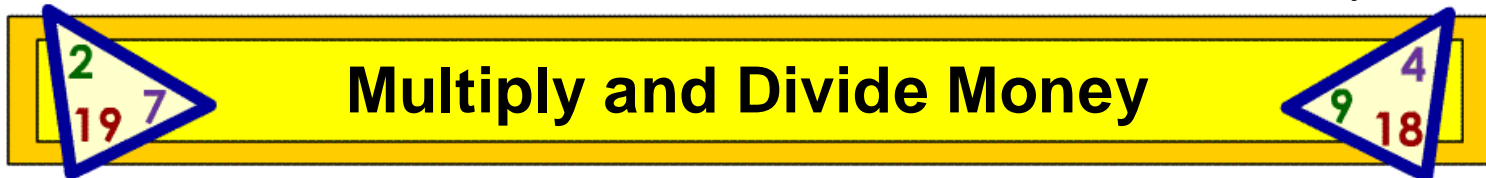
$$9 \overline{) \$81.00}$$

$$4 \overline{) \$72.00}$$

$$2 \overline{) \$64.00}$$

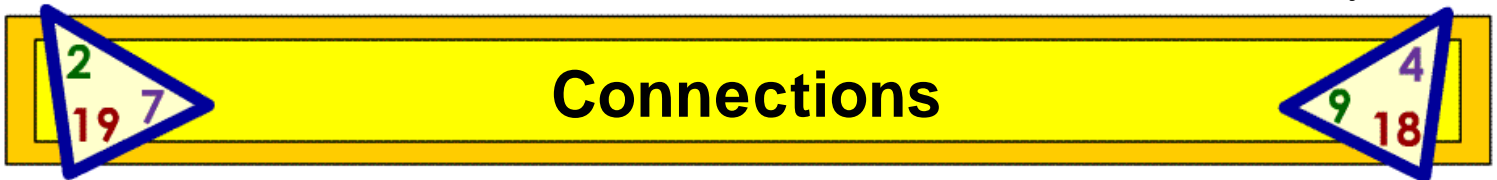
Name _____ Date _____

Number Sense
Money



Solve.

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Compare and Order Decimals

Compare. Write $<$, $>$, or $=$ to make each number sentence true.

A. $0.45 < 0.456$

B. $0.08 < 0.8$

C. $0.02 > 0.014$

D. $0.37 < 0.9$

E. $0.101 > 0.09$

F. $0.7 = 0.70$

Order the decimals from least to greatest.

G. 0.04 0.017 0.101 0.9 H. 0.31 0.405 0.16 0.020

0.017 **0.04** **0.101** **0.9** **0.020** **0.16** **0.31** **0.405**

I. 0.233 0.32 0.3 0.056 J. 0.109 0.019 0.19 0.1

0.056 **0.233** **0.3** **0.32** **0.019** **0.1** **0.109** **0.19**

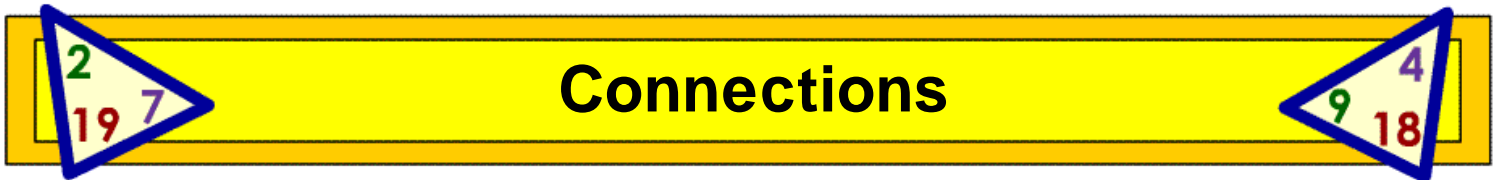
Solve.

- K. Using the digits **0**, **2**, and **5**, create as many decimal numbers less than 1 as possible. Each digit may only be used once in each number. Use another **0** to hold the ones place in the decimal numbers.

0.025, 0.052, 0.205, 0.250, 0.502, 0.520

- L. Order the decimals from greatest to least.

0.520, 0.502, 0.250, 0.205, 0.052, 0.025



Today I learned:

Decimal War, a card game for 2-4 players

Setup

Carefully cut out the 28 playing cards. You may wish to mount the cards on 3" x 5" index cards. Shuffle the cards. Deal all the cards to the players.

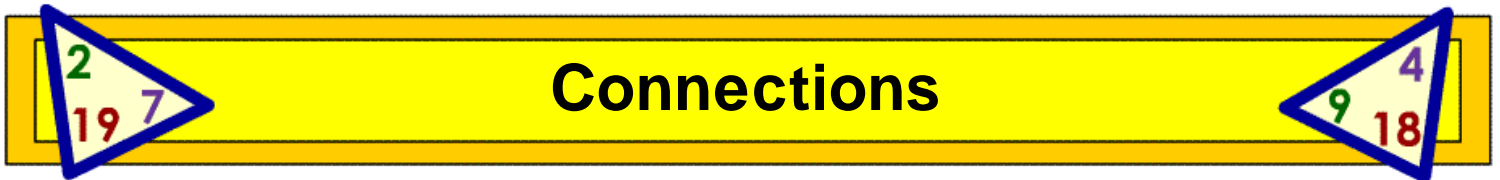
Playing

On the count of three, each player turns over one card to reveal its value. The player with the greatest decimal wins the cards in play. If two or more players have the greatest decimal, those players each place a card facedown and one more faceup. The player with the greatest faceup card wins all the cards in play. If a player runs out of cards, that player is out of the game. Play continues until 1 player has collected all the cards.

Winning

The winner is the player who collects the entire deck of playing cards.

0.1	0.2
0.3	0.5



0.8

0.9

0.01

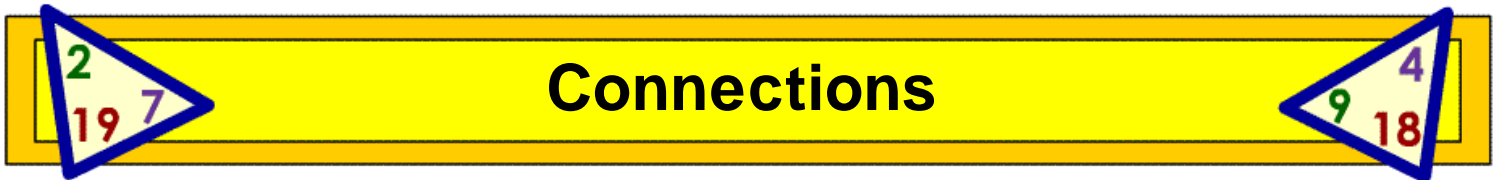
0.05

0.11

0.23

0.20

0.35



0.41

0.50

0.83

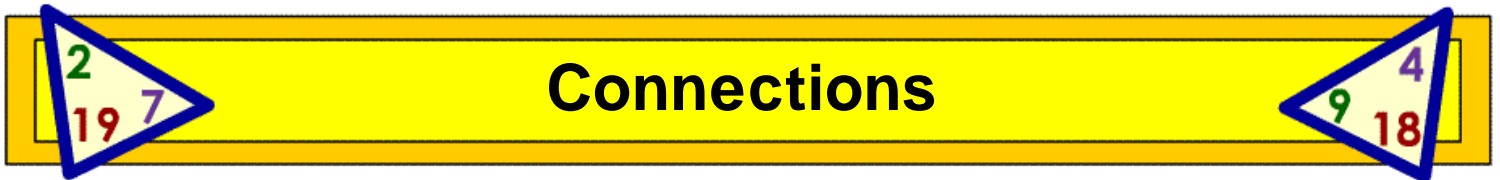
0.87

0.99

0.010

0.001

0.025



0.003

0.046

0.164

0.213

0.506

0.842

0.953

0.900

Compare and Order Decimals

Compare. Write <, >, or = to make each number sentence true.

A. 0.45 0.456

B. 0.08 0.8

C. 0.02 0.014

D. 0.37 0.9

E. 0.101 0.09

F. 0.7 0.70

Order the decimals from least to greatest.

G. 0.04 0.017 0.101 0.9 H. 0.31 0.405 0.16 0.020

0.017 _____ _____ _____ _____ _____ _____ _____

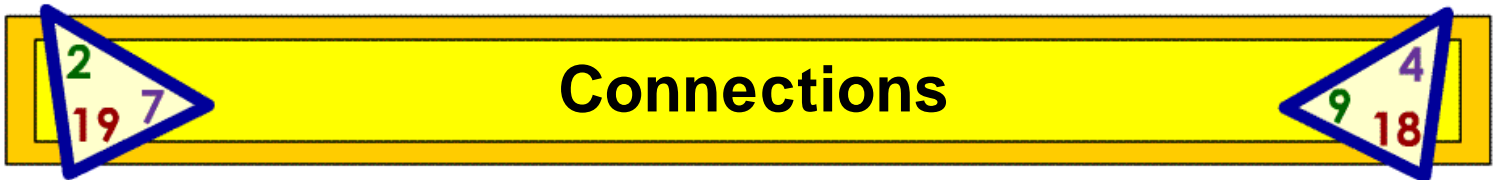
I. 0.233 0.32 0.3 0.056 J. 0.109 0.019 0.19 0.1

_____ _____ _____ _____ _____ _____ _____ _____

Solve.

K. Using the digits **0**, **2**, and **5**, create as many decimal numbers less than 1 as possible. Each digit may only be used once in each number. Use another **0** to hold the ones place in the decimal numbers.

L. Order the decimals from greatest to least.



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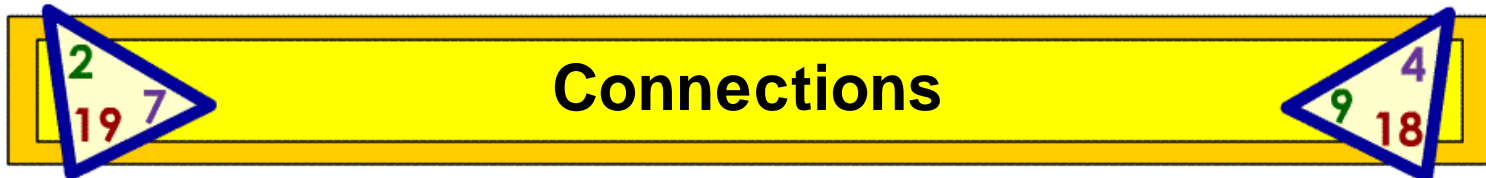
Winning

The winner is the player who collects the entire deck of playing cards.

0.1	0.2
0.3	0.5

Name _____ Date _____

Number Sense
Decimals



0.8	0.9
0.01	0.05
0.11	0.23
0.20	0.35

Name _____ Date _____

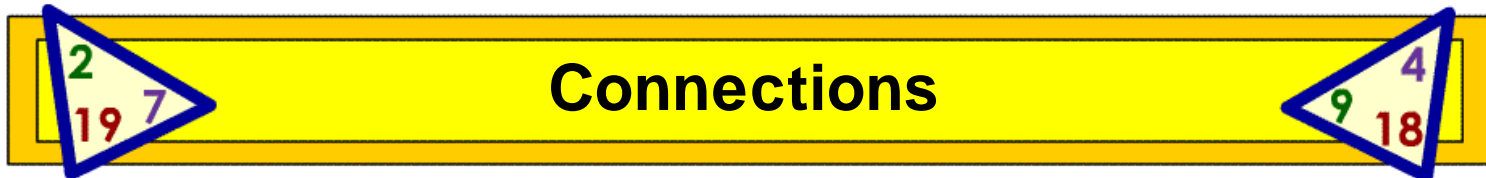
Number Sense
Decimals



0.41	0.50
0.83	0.87
0.99	0.010
0.001	0.025

Name _____ Date _____

Number Sense
Decimals



0.003

0.046

0.164

0.213

0.506

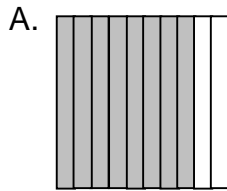
0.842

0.953

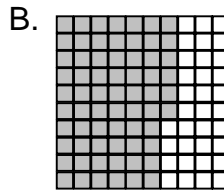
0.900

Fractions as Decimals

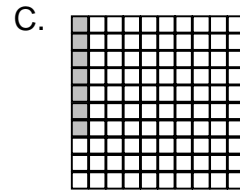
Write the fraction and decimal that represent the shaded parts.



$$\frac{8}{10} \quad 0.8$$



$$\frac{66}{100} \quad 0.66$$



$$\frac{7}{100} \quad 0.07$$

Write the decimal form of each fraction.

D. $\frac{7}{10} = 0.7$

E. $\frac{19}{100} = 0.19$

F. $\frac{8}{100} = 0.08$

G. $\frac{48}{100} = 0.48$

H. $\frac{1}{10} = 0.1$

I. $\frac{11}{100} = 0.11$

Write the mixed decimal form of each mixed fraction.

J. $3\frac{1}{10} = 3.1$

K. $4\frac{33}{100} = 4.33$

L. $1\frac{9}{10} = 1.9$

M. $2\frac{12}{100} = 2.12$

N. $2\frac{8}{100} = 2.08$

O. $5\frac{5}{100} = 5.05$



Today I learned:

Crossword Puzzle

Use the clues to complete the puzzle. Write each fraction as a decimal. Use a calculator to help find the decimal equivalent. Divide the numerator by the denominator.

¹	0	•	² 3	7	³ 5		⁴ 1
	•		•		⁵ 1	•	2 5
⁶	3	•	4		•		•
					⁷ 2	•	⁸ 7 5
⁹	2	•	8	¹⁰ 7	5		3
	•			•		¹¹ 0	• 9
¹²	8	•	0	7			0
	0			¹³ 5	•	6	2 5

Across

1. $\frac{3}{8} =$

6. $3\frac{2}{5} =$

9. $2\frac{7}{8} =$

12. $8\frac{7}{100} =$

5. $1\frac{1}{4} =$

7. $2\frac{3}{4} =$

11. $\frac{9}{10} =$

13. $5\frac{5}{8} =$

Down

1. $\frac{3}{10} =$

3. $51\frac{2}{8} =$

8. $73\frac{2}{100} =$

10. $7\frac{6}{8} =$

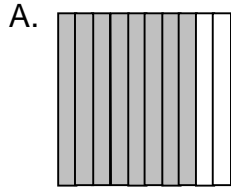
2. $3\frac{8}{20} =$

4. $15\frac{1}{2} =$

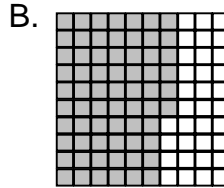
9. $2\frac{80}{100} =$

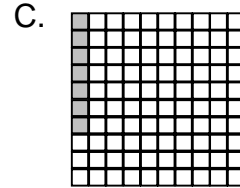
2
19 7**Fractions as Decimals**4
9 18

Write the fraction and decimal that represent the shaded parts.



$$\frac{8}{10} \quad 0.8$$





Write the decimal form of each fraction.

D. $\frac{7}{10} = 0.7$

E. $\frac{19}{100} =$ _____

F. $\frac{8}{100} =$ _____

G. $\frac{48}{100} =$ _____

H. $\frac{1}{10} =$ _____

I. $\frac{11}{100} =$ _____

Write the mixed decimal form of each mixed fraction.

J. $3\frac{1}{10} = 3.1$

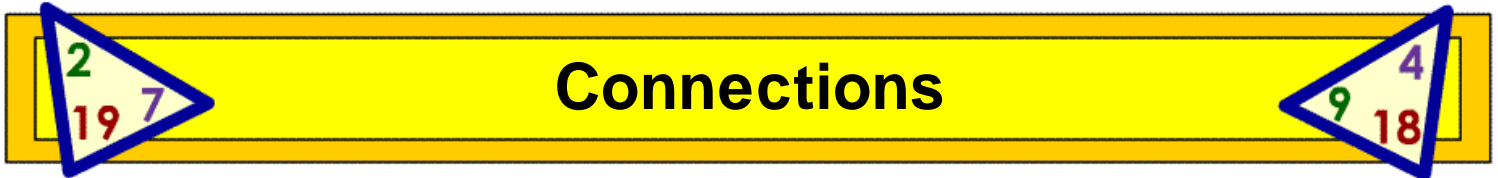
K. $4\frac{33}{100} =$ _____

L. $1\frac{9}{10} =$ _____

M. $2\frac{12}{100} =$ _____

N. $2\frac{8}{100} =$ _____

O. $5\frac{5}{100} =$ _____



Today I learned:

Crossword Puzzle

Use the clues to complete the puzzle. Write each fraction as a decimal. Use a calculator to help find the decimal equivalent. Divide the numerator by the denominator.

1	0		2	3		7	3	5			4
							5				
6											
							7		8		
9				10							
								11			
12											
				13							

Across

1. $\frac{3}{8} =$

5. $1\frac{1}{4} =$

6. $3\frac{2}{5} =$

7. $2\frac{3}{4} =$

9. $2\frac{7}{8} =$

11. $\frac{9}{10} =$

12. $8\frac{7}{100} =$

13. $5\frac{5}{8} =$

Down

1. $\frac{3}{10} =$

2. $3\frac{8}{20} =$

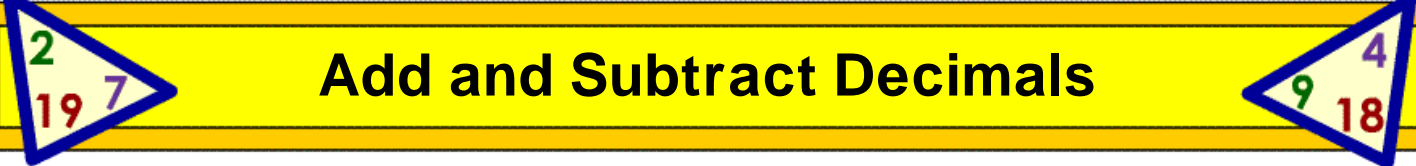
3. $51\frac{2}{8} =$

4. $15\frac{1}{2} =$

8. $73\frac{2}{100} =$

9. $2\frac{80}{100} =$

10. $7\frac{6}{8} =$



Add and Subtract Decimals

Find the sum.

$$\begin{array}{r} \text{A. } 0.6 \\ + 0.5 \\ \hline 1.1 \end{array}$$

$$\begin{array}{r} \text{B. } 0.45 \\ + 0.89 \\ \hline 1.34 \end{array}$$

$$\begin{array}{r} \text{C. } 0.57 \\ + 1.05 \\ \hline 1.62 \end{array}$$

$$\begin{array}{r} \text{D. } 1.4 \\ + 0.56 \\ \hline 1.96 \end{array}$$

$$\begin{array}{r} \text{E. } 3.8 \\ + 1.5 \\ \hline 5.3 \end{array}$$

$$\begin{array}{r} \text{F. } 2.08 \\ + 0.28 \\ \hline 2.36 \end{array}$$

$$\begin{array}{r} \text{G. } 0.27 \\ + 3.8 \\ \hline 4.07 \end{array}$$

$$\begin{array}{r} \text{H. } 1.79 \\ + 1.06 \\ \hline 2.85 \end{array}$$

Find the difference.

$$\begin{array}{r} \text{I. } 0.9 \\ - 0.3 \\ \hline 0.6 \end{array}$$

$$\begin{array}{r} \text{J. } 0.78 \\ - 0.39 \\ \hline 0.39 \end{array}$$

$$\begin{array}{r} \text{K. } 1.09 \\ - 0.75 \\ \hline 0.34 \end{array}$$

$$\begin{array}{r} \text{L. } 1.3 \\ - 0.56 \\ \hline 0.74 \end{array}$$

$$\begin{array}{r} \text{M. } 3.8 \\ - 1.24 \\ \hline 2.56 \end{array}$$

$$\begin{array}{r} \text{N. } 0.99 \\ - 0.6 \\ \hline 0.39 \end{array}$$

$$\begin{array}{r} \text{O. } 1.34 \\ - 0.39 \\ \hline 0.95 \end{array}$$

$$\begin{array}{r} \text{P. } 1.72 \\ - 0.54 \\ \hline 1.18 \end{array}$$

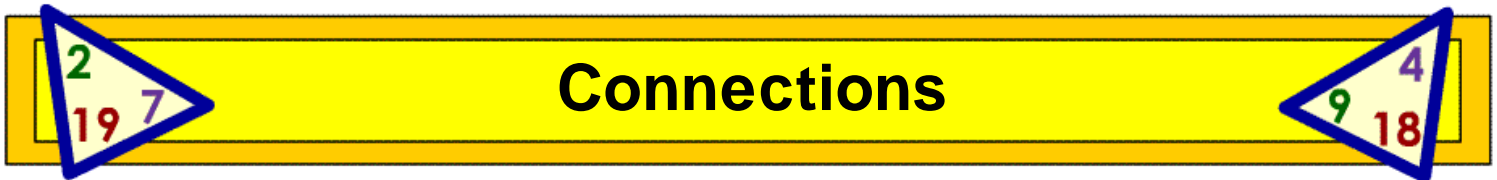
Solve.

Q. Brandon ran 1.45 miles, and Tori ran 1.78 miles. How much farther did Tori run?

Tori ran 0.33 miles farther than Brandon.
 $1.78 - 1.45 = 0.33$

R. Mark bought 3 packages of ground beef. Two packages weighed 1.32 pounds. The third package weighed 0.89 pound. How much ground beef did Mark purchase altogether?

Mark purchased 3.53 pounds of hamburger.
 $1.32 + 1.32 + 0.89 = 3.53$



Today I learned:

Casting Out Nines

A fun way to check an addition problem is to *cast out* the nines. This process works for whole numbers as well as decimal numbers.

$$4.27 + 6.92 = 11.19$$

Step 1: Cross out all the 9's in the problem.

Step 2: Cross out any digits that equal 9 within a number.

Step 3: Add the remaining digits for each number in the problem. Continue adding these sums until a single digit remains.

$$6 + 2 = 8 \text{ and } 1 + 1 + 1 = 3$$

Step 4: Add the digits from the addends. $4 + 8 = 12$

If this sum is greater than 9, add the digits until a single digit remains. $1 + 2 = 3$

Step 5: Your problem is correct if the digit from the addends matches the digit from your answer.

Make up several addition problems, and solve them.

Then cast out the nines to check your answer.

Step 1

$$\begin{array}{r} 4.27 \\ + 6.92 \\ \hline 11.19 \end{array}$$

Step 2

$$\begin{array}{r} 4.27 \\ + 6.92 \\ \hline 11.19 \end{array}$$

Step 3

$$\begin{array}{r} 4.27 \quad 4 \\ + 6.92 \quad 8 \\ \hline 11.19 \quad 3 \end{array}$$

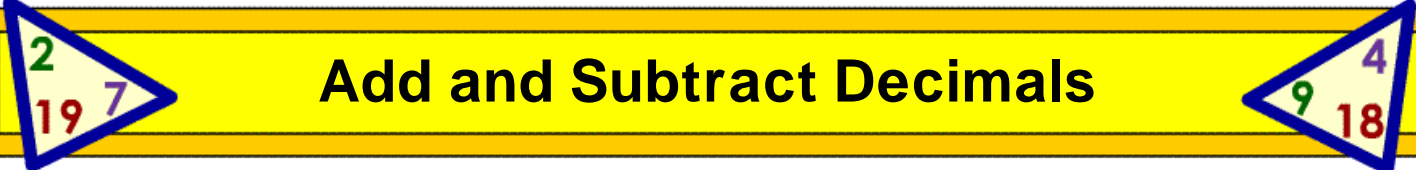
Step 4

$$4 + 8 = 12$$

$$1 + 2 =$$

Step 5

$$3 = 3 \quad 3$$



Add and Subtract Decimals

Find the sum.

A.
$$\begin{array}{r} 0.6 \\ + 0.5 \\ \hline 1.1 \end{array}$$

B.
$$\begin{array}{r} 0.45 \\ + 0.89 \\ \hline \end{array}$$

C.
$$\begin{array}{r} 0.57 \\ + 1.05 \\ \hline \end{array}$$

D.
$$\begin{array}{r} 1.4 \\ + 0.56 \\ \hline \end{array}$$

E.
$$\begin{array}{r} 3.8 \\ + 1.5 \\ \hline \end{array}$$

F.
$$\begin{array}{r} 2.08 \\ + 0.28 \\ \hline \end{array}$$

G.
$$\begin{array}{r} 0.27 \\ + 3.8 \\ \hline \end{array}$$

H.
$$\begin{array}{r} 1.79 \\ + 1.06 \\ \hline \end{array}$$

Find the difference.

I.
$$\begin{array}{r} 0.9 \\ - 0.3 \\ \hline 0.6 \end{array}$$

J.
$$\begin{array}{r} 0.78 \\ - 0.39 \\ \hline \end{array}$$

K.
$$\begin{array}{r} 1.09 \\ - 0.75 \\ \hline \end{array}$$

L.
$$\begin{array}{r} 1.3 \\ - 0.56 \\ \hline \end{array}$$

M.
$$\begin{array}{r} 3.8 \\ - 1.24 \\ \hline \end{array}$$

N.
$$\begin{array}{r} 0.99 \\ - 0.6 \\ \hline \end{array}$$

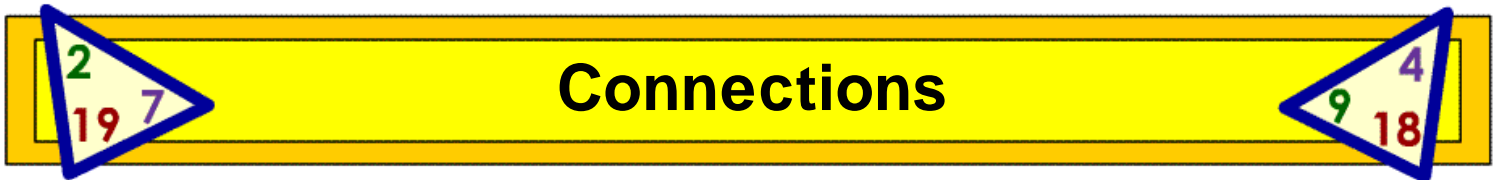
O.
$$\begin{array}{r} 1.34 \\ - 0.39 \\ \hline \end{array}$$

P.
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Solve.

Q. Brandon ran 1.45 miles, and Tori ran 1.78 miles. How much farther did Tori run?

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Step 4: Add the digits from the addends. $4 + 8 = 12$

If this sum is greater than 9, add the digits until a single digit remains. $1 + 2 = 3$

Step 5: Your problem is correct if the digit from the addends matches the digit from your answer.

Step 1	$\begin{array}{r} 4.27 \\ + 6.92 \\ \hline 11.19 \end{array}$
Step 2	$\begin{array}{r} 4.27 \\ + 6.92 \\ \hline 11.19 \end{array}$
Step 3	$\begin{array}{r} 4.27 \quad 4 \\ + 6.92 \quad 8 \\ \hline 11.19 \end{array}$
Step 4	$4 + 8 = 12$
Step 5	$1 + 2 =$
Step 5	$3 = 3$

Make up several addition problems, and solve them.

Then cast out the nines to check your answer.



Fractions and Decimals

Rewrite the fraction as a division problem.

A. $\frac{1}{2}$ $\underline{2 \overline{)1}}$

$\frac{3}{4}$ $\underline{4 \overline{)3}}$

$\frac{5}{6}$ $\underline{6 \overline{)5}}$

B. $\frac{9}{10}$ $\underline{10 \overline{)9}}$

$\frac{15}{24}$ $\underline{24 \overline{)15}}$

$\frac{7}{18}$ $\underline{18 \overline{)7}}$

Convert each fraction to its decimal equivalent.

C. $\frac{3}{10}$ $\underline{0.3}$

$\frac{3}{8}$ $\underline{0.375}$

$\frac{1}{4}$ $\underline{0.25}$

D. $\frac{2}{5}$ $\underline{0.4}$

$\frac{9}{20}$ $\underline{0.45}$

$\frac{15}{20}$ $\underline{0.75}$

E. $\frac{7}{14}$ $\underline{0.50}$

$\frac{5}{8}$ $\underline{0.625}$

$\frac{3}{25}$ $\underline{0.12}$

Circle the greater number.

F. $\left(\frac{4}{10}\right)$ 0.35

G. $\left(\frac{4}{5}\right)$ 0.56

H. $\left(\frac{1}{4}\right)$ 0.2

I. $\frac{3}{12}$ $\left(0.27\right)$

J. $\frac{1}{2}$ $\left(0.6\right)$

K. $\left(\frac{7}{8}\right)$ 0.8

L. $\frac{11}{22}$ $\left(0.55\right)$

M. $\left(\frac{2}{2}\right)$ 0.99

N. $\left(\frac{5}{25}\right)$ 0.15

Fractions and Decimals

Convert each decimal to a fraction. Simplify the fraction.

O. 0.18 $\frac{9}{50}$

0.03 $\frac{3}{100}$

0.8 $\frac{4}{5}$

P. 0.05 $\frac{1}{20}$

0.125 $\frac{1}{8}$

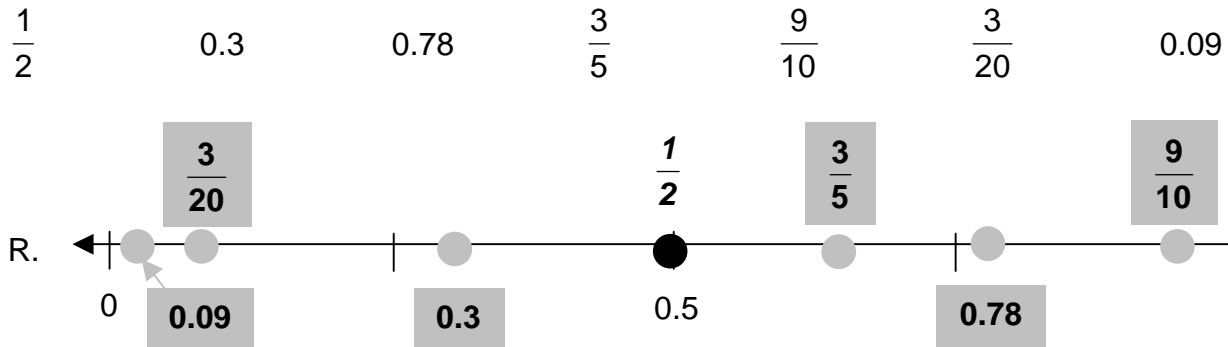
0.02 $\frac{1}{50}$

Q. 0.35 $\frac{7}{20}$

0.75 $\frac{3}{4}$

0.9 $\frac{9}{10}$

Plot the following numbers on the number line.




Write a set of 3 fractions and 3 decimals from least to greatest. Alternate between the types of numbers.


Answers may vary.

Example: $\frac{1}{4}$, 0.3, $\frac{1}{2}$, 0.7, $\frac{3}{4}$, 0.8

S. $\frac{1}{16}$, 0.09, $\frac{3}{8}$, 0.4, $\frac{5}{7}$, 0.98



Connections



Think About It

Describe at least 2 situations in which working with the decimal form of a number may be easier than working with the fractional form of the same number.

SAMPLE RESPONSE: *Using the decimal form of a number may be easier to work*

with than the fractional form when you are adding values. This is especially true

when you're adding money. Adding \$.10 and \$.25 is easier than adding one-tenth

and one-quarter of a dollar.

Another situation is comparing values. It's easier to compare 0.375 to 0.38 than by

their equivalent fractions.

Kriss Kross

Using deductive reasoning, place the numbers in the puzzle.

2-digit

27
70
73

3-digit

125
304
753

4-digit

1309
3269
3506
4628
7249
7336

5-digit

12486
37038
37489
45623
58318
80193

6-digit

317559
482579
832769
940628

7-digit

1003049

4		3	7	0	3	8		7	3				4
5					2				1	2	4	8	6
6		3	5	0	6				7				2
2		0			9		1		5	8	3	1	8
3	7	4	8	9			2		5			0	
				4	8	2	5	7	9			0	
	1			0						7	3	3	6
8	3	2	7	6	9		2	7				0	
	0			2				5		7	2	4	9
	9			8	0	1	9	3		0		9	



Fractions and Decimals

Rewrite the fraction as a division problem.

A. $\frac{1}{2}$ $\overline{2)1}$ _____

$\frac{3}{4}$ _____

$\frac{5}{6}$ _____

B. $\frac{9}{10}$ _____

$\frac{15}{24}$ _____

$\frac{7}{18}$ _____

Convert each fraction to its decimal equivalent.

C. $\frac{3}{10}$ 0.3 _____

$\frac{3}{8}$ _____

$\frac{1}{4}$ _____

D. $\frac{2}{5}$ _____

$\frac{9}{20}$ _____

$\frac{15}{20}$ _____

E. $\frac{7}{14}$ _____

$\frac{5}{8}$ _____

$\frac{3}{25}$ _____

Circle the greater number.

F. $\left(\frac{4}{10}\right)$ 0.35

G. $\frac{4}{5}$ 0.56

H. $\frac{1}{4}$ 0.2

I. $\frac{3}{12}$ 0.27

J. $\frac{1}{2}$ 0.6

K. $\frac{7}{8}$ 0.8

L. $\frac{11}{22}$ 0.55

M. $\frac{2}{2}$ 0.99

N. $\frac{5}{25}$ 0.15

Fractions and Decimals

Convert each decimal to a fraction. Simplify the fraction.

O. 0.18 $\frac{9}{50}$ _____

0.03 _____

0.8 _____

P. 0.05 _____

0.125 _____

0.02 _____

Q. 0.35 _____

0.75 _____

0.9 _____

Plot the following numbers on the number line.

$\frac{1}{2}$

0.3

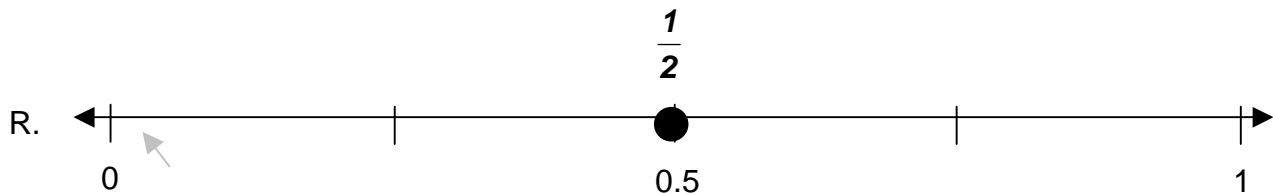
0.78

$\frac{3}{5}$

$\frac{9}{10}$

$\frac{3}{20}$

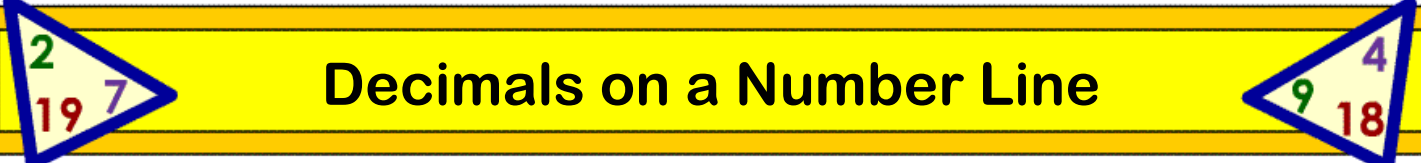
0.09



Write a set of 3 fractions and 3 decimals from least to greatest. Alternate between the types of numbers.

Example: $\frac{1}{4}$, 0.3, $\frac{1}{2}$, 0.7, $\frac{3}{4}$, 0.8

S. _____



Decimals on a Number Line

Complete the place value chart.

A.

tens	ones	tenths	hundredths	thousandths
------	------	--------	------------	-------------

Write the standard number for each decimal.

B. forty-five hundredths 0.45

C. five hundredths 0.05

D. thirty hundredths 0.30

E. six tenths 0.6

F. eighty-nine hundredths 0.89

G. seven thousandths 0.007

H. seven hundred sixty-nine thousandths 0.769

I. one hundred three thousandths 0.103

Write the word form of each number.

J. 0.03 three hundredths

K. 0.7 seven tenths

L. 0.103 one hundred three thousandths

M. 0.002 two thousandths

N. 0.21 twenty-one hundredths

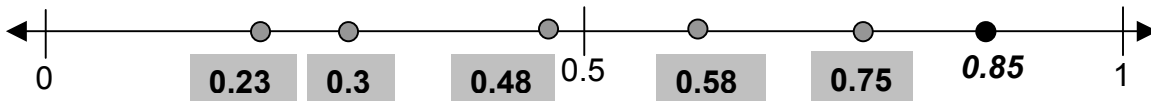
Decimals on a Number Line

Plot and label the decimals on the number line.

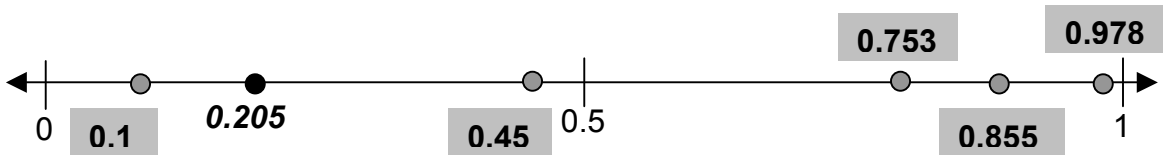
- O. 0.8 0.4 0.6 0.9 0.1 0.3



- P. 0.85 0.23 0.58 0.3 0.75 0.48



- Q. 0.205 0.855 0.753 0.45 0.1 0.978



Circle the two numbers that are closest to the given number on a number line.

- | | | | | | |
|----------|-------------|-------------|-------------|--------------|-------------|
| R. 0.58 | <u>0.75</u> | 0.26 | 0.125 | <u>0.508</u> | 0.058 |
| S. 0.031 | 0.4 | 0.95 | <u>0.02</u> | <u>0.1</u> | 0.31 |
| T. 0.9 | 0.091 | <u>0.85</u> | 0.75 | 0.05 | <u>0.92</u> |



Think About It

Is it true that between every two numbers there is another number? Using the points 0.456 and 0.457 explain your answer.

SAMPLE RESPONSE: Yes, between every two numbers there is always another number. At first glance, it might appear that there isn't another number between 0.456 and 0.457. Rewrite the numbers as their equivalent decimals: 0.4560 and 0.4570. Now it's easier to see there are many numbers that fall between these points: 0.4561, 0.4562, 0.4563, etc. This is true for any two points. You can always extend numbers to another decimal place value and find more numbers between them. This mathematical fact is called the Density Property.

Between the Decimals Game

Object of Game

To be the first player to discard all cards in your hand.

Materials

copy of playing cards, scissors

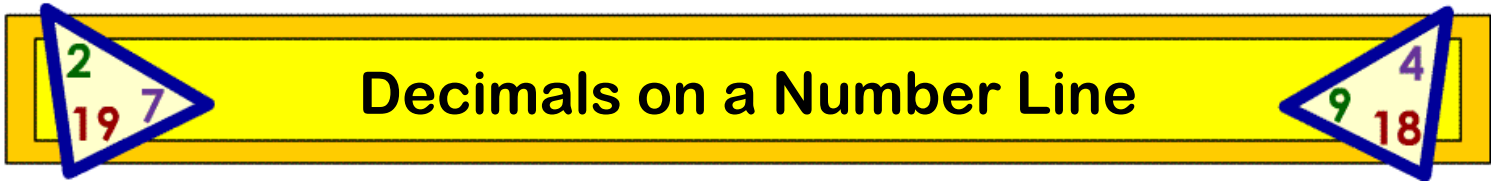
Number of Players

2 to 4

How to Play

Carefully cut out the playing cards. Shuffle the cards and deal them face down to every player until each player has 8 cards. The remaining cards get placed face down in the center. The dealer draws two cards from the center deck and places them face up. The player to the right of the dealer goes first.

If the first player has a card that has a value between the two cards that are facing up, he or she may discard it by placing it (face up) on top of one of the two cards. Now, the next player must find a card that has a value between these cards. If a player does not discard, he or she draws from the center stack and replaces both of the face up cards. The game continues in this manner until a player discards all of his or her cards and is then declared the winner.



Complete the place value chart.

A.

	<i>ones</i>			<i>thousandths</i>
--	-------------	--	--	--------------------

Write the standard number for each decimal.

B. forty-five hundredths 0.45

C. five hundredths _____

D. thirty hundredths _____

E. six tenths _____

F. eighty-nine hundredths _____

G. seven thousandths _____

H. seven hundred sixty-nine thousandths _____

I. one hundred three thousandths _____

Write the word form of each number.

J. 0.03 three hundredths

K. 0.7 _____

L. 0.103 _____

M. 0.002 _____

N. 0.21 _____

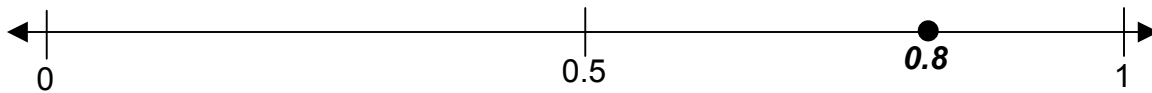
2
19 7

Decimals on a Number Line

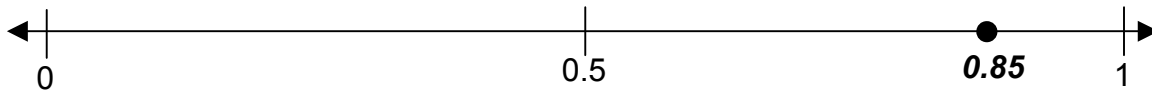
4
9 18

Plot and label the decimals on the number line.

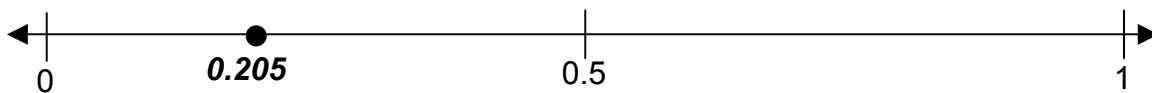
O. 0.8 0.4 0.6 0.9 0.1 0.3



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Q. 0.205 0.855 0.753 0.45 0.1 0.978

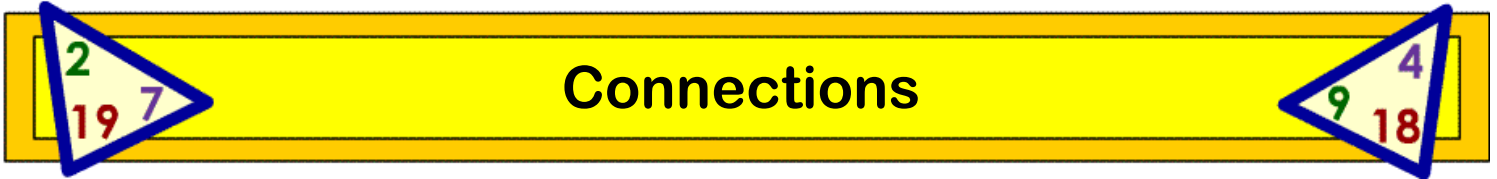


Circle the two numbers that are closest to the given number on a number line.

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S. 0.031 0.4 0.95 0.02 0.1 0.31

T. 0.9 0.091 0.85 0.75 0.05 0.92

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Connections

0.25	0.35	0.45	0.55	0.65	0.75
0.29	0.39	0.49	0.59	0.69	0.79
0.31	0.41	0.51	0.61	0.71	0.81
0.35	0.45	0.55	0.65	0.75	
0.39	0.49	0.59	0.69		
0.41	0.51	0.61			
0.45	0.55				
0.49					
0.51					
0.55					
0.59					
0.61					
0.65					
0.69					
0.71					
0.75					
0.79					
0.81					

Comparing Decimals

Circle the greatest decimal.

- A. 0.45 0.54 0.045 0.5 0.05
- B. 0.008 0.08 0.085 0.009 0.079
- C. 0.1 0.59 0.63 0.87 0.095
- D. 0.85 0.099 0.75 0.091 0.9
- E. 0.125 0.548 0.689 0.095 0.8

Compare the decimals using the symbols $<$, $>$, or $=$.

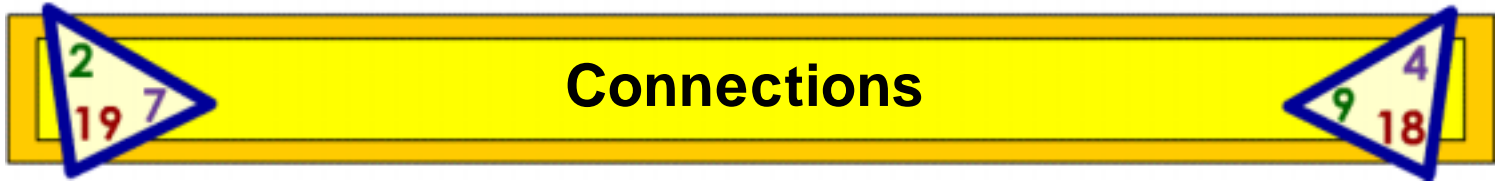
- F. 0.35 $<$ 0.53 G. 0.9 $>$ 0.09
- H. 0.07 $<$ 0.7 I. 0.075 $<$ 0.08
- J. 0.8 $=$ 0.80 K. 0.125 $<$ 0.2
- L. 0.95 $>$ 0.095 M. 0.50 $=$ 0.5
- N. 0.504 $>$ 0.054 O. 0.658 $<$ 0.659
- P. 0.03 $<$ 0.30 Q. 0.9 $>$ 0.875

Order the decimals from least to greatest.

R. 0.3, 0.32, 0.12, 0.2 0.12, 0.2, 0.3, 0.32

S. 0.85, 0.587, 0.593, 0.08 0.08, 0.587, 0.593, 0.85

T. 0.313, 0.131, 0.33, 0.3 0.131, 0.3, 0.313, 0.33

**Think About It**

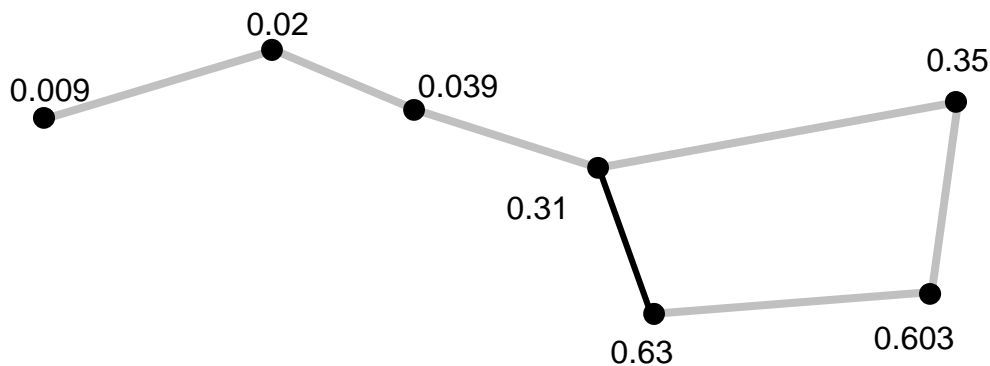
If zeros are allowed to be written at the end of a decimal number, can zeroes be written in front of the decimal number? Explain your thinking.

SAMPLE RESPONSE: Zeroes may be written in front of a number. However, this is not practical since there are an infinite number of place values before and after a number. Mathematicians agreed to write numbers starting with the first non-zero digit. Usually a zero is written at the end of decimal number to find an equivalent form of the number.

Example: 2.25 could be written as ...0000000002.250000000..., but that would not be practical.

Connect the Decimals

Connect the points in order from least to greatest.



What shape did you draw? **The Big Dipper**

Hint: People in ancient times “connected dots” in the night sky to see images of heroes and legends.

2
19 7**Comparing Decimals**4
9 18**Circle the greatest decimal.**

- A. 0.45 0.54 0.045 0.5 0.05
- B. 0.008 0.08 0.085 0.009 0.079
- C. 0.1 0.59 0.63 0.87 0.095
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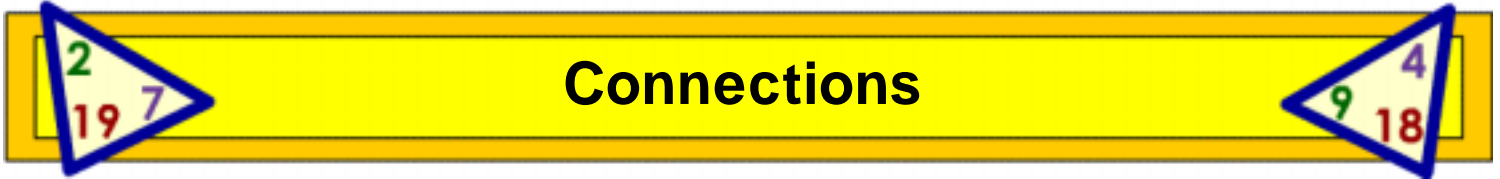
Compare the decimals using the symbols <, >, or =.

- F. 0.35 < 0.53
- G. 0.9 0.09
- H. 0.07 0.7
- I. 0.075 0.08
- J. 0.8 0.80
- K. 0.125 0.2
- L. 0.95 0.095
- M. 0.50 0.5
- N. 0.504 0.054
- O. 0.658 0.659
- P. 0.03 0.30
- Q. 0.9 0.875

Order the decimals from least to greatest.R. 0.3, 0.32, 0.12, 0.2 0.12, 0.2, 0.3, 0.32

S. 0.85, 0.587, 0.593, 0.08 _____

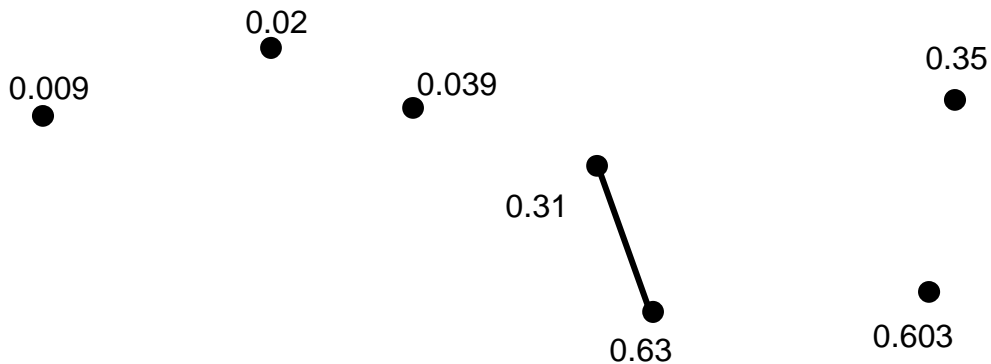
T. 0.313, 0.131, 0.33, 0.3 _____

**Think About It**

If zeros are allowed to be written at the end of a decimal number, can zeroes be written in front of the decimal number? Explain your thinking.

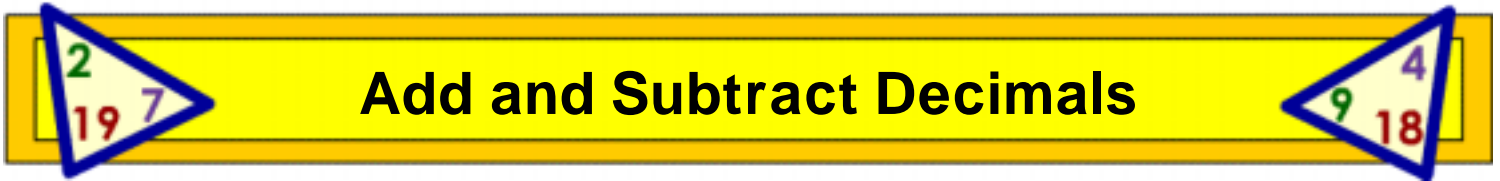
Connect the Decimals

Connect the points in order from least to greatest.



What shape did you draw? _____

Hint: People in ancient times “connected dots” in the night sky to see images of heroes and legends.



Add and Subtract Decimals

Find the sum of the decimals.

$$\begin{array}{r} 0.57 \\ + 0.123 \\ \hline 0.693 \end{array}$$

$$\begin{array}{r} 0.85 \\ + 2.5 \\ \hline 3.35 \end{array}$$

$$\begin{array}{r} 1.954 \\ + 0.592 \\ \hline 2.546 \end{array}$$

$$\begin{array}{r} 0.845 \\ + 5.48 \\ \hline 6.325 \end{array}$$

$$\begin{array}{r} 0.5 \\ + 2.89 \\ \hline 3.39 \end{array}$$

B. $2.06 + 3.009 = \underline{5.069}$

$7.595 + 0.45 = \underline{8.045}$

$0.87 + 1.5 = \underline{2.37}$

Find the difference of the decimals.

$$\begin{array}{r} 3.09 \\ - 0.123 \\ \hline 2.967 \end{array}$$

$$\begin{array}{r} 4.95 \\ - 2.5 \\ \hline \end{array}$$

$$\begin{array}{r} 1.051 \\ - 0.59 \\ \hline \end{array}$$

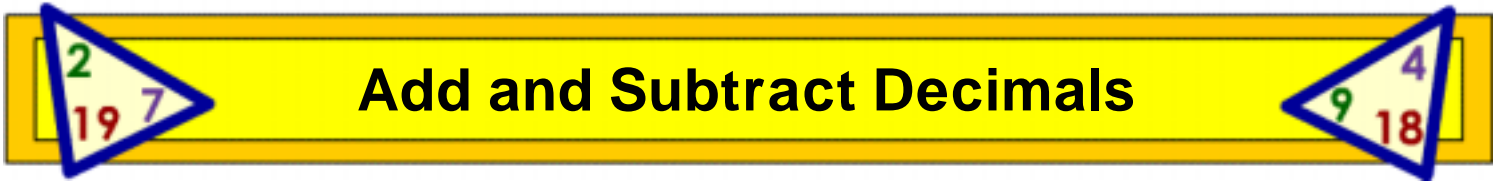
$$\begin{array}{r} 0.875 \\ - 0.059 \\ \hline \end{array}$$

$$\begin{array}{r} 2.9 \\ - 2.89 \\ \hline \end{array}$$

D. $6.26 - 4.003 = \underline{2.257}$

$3.235 - 2.45 = \underline{0.785}$

$2.054 - 1.5 = \underline{0.554}$



Add and Subtract Decimals

Solve.

- E. How much faster was Pedro than Jack?

Pedro was 0.85 seconds faster than Jack.
 $14.05 \text{ seconds} - 13.20 \text{ seconds} = 0.85 \text{ seconds}$

Jack	14.05
Meredith	12.08
Kyle	12.58
Jill	15.45
Pedro	13.2
Raven	13.089
Benny	13.9

- F. What was the combined time of Raven and Kyle?

The combined time was 25.669 seconds.
 $13.089 \text{ seconds} + 12.58 \text{ seconds} = 25.669$

- G. How much faster was the first place runner compared to the last place runner?

The first place runner was 3.37 seconds faster than the last place runner.
 $15.45 \text{ seconds} - 12.08 \text{ seconds} = 3.37 \text{ seconds}$

- H. Which runner was 1.97 seconds slower than Meredith?

Jack was 1.97 seconds slower than Meredith.
 $12.08 \text{ seconds} + 1.97 \text{ seconds} = 14.05 \text{ seconds}$

- I. Which two runners have a combined time of 29.35 seconds?

Jill and Benny have a combined time of 29.35 seconds.
 $15.45 \text{ seconds} + 13.9 \text{ seconds} = 29.35 \text{ seconds}$



Connections

Think About It

Give an example of when you would use an equivalent decimal to subtract decimals. Explain your thinking.

SAMPLE RESPONSE: *You most likely would use equivalent decimals to subtract decimals when regrouping is required. In the example $2.5 - 0.27$, an equivalent decimal of 2.5 should be used to subtract the hundredths.*

$$\begin{array}{r} 2.5 \text{ (cannot subtract 7 hundredths)} \\ - 0.27 \\ \hline \end{array}$$

$$\begin{array}{r} 2.50 \text{ (equivalent decimal)} \\ - 0.27 \\ \hline \end{array}$$

Casting Out Nines

Most times, people use the inverse operation to check an addition or subtraction problem, but there is another way. It's called casting out nines. Review the steps and sample problems, and then try it on your own.

For Addition:

Step 1: Cross out any nines in the problem or any combination of digits that equal nine.

Step 2: Add the remaining digits across each addend. If this sum is greater than 9, add those digits. Continue until you have a one-digit number.

Step 3: Add the 2 one-digit numbers from each sum. If this sum is greater than 9, add the digits again until a one-digit number is left. Circle this number.

Step 4: Next, add the digits in the sum. If this sum is greater than 9, continue adding the digits until you have a one-digit number. Circle this number.

Step 5: Compare the 2 numbers in the circles. If they match, the answer is correct.

Note: To check a subtraction problem, subtract the numbers from step 3.

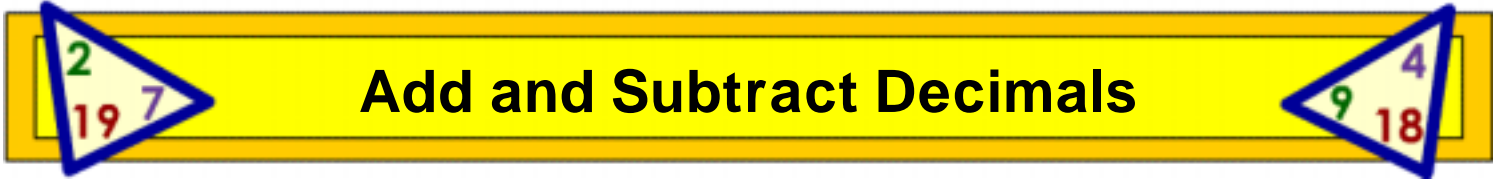
Examples:

$$\begin{array}{r} 745 \\ + 396 \\ \hline 1141 \end{array}$$

$1 + 1 + 4 + 1 = 7$

$$\begin{array}{r} 576 \\ - 217 \\ \hline 359 \end{array}$$

$5 + 7 + 6 = 18$ $1 + 8 = 9$
 $9 - 1 = 8$
 $3 + 5 = 8$



Add and Subtract Decimals

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$$\begin{array}{r} 0.85 \\ + 2.5 \\ \hline \end{array}$$

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$$\begin{array}{r} 0.845 \\ + 5.48 \\ \hline \end{array}$$

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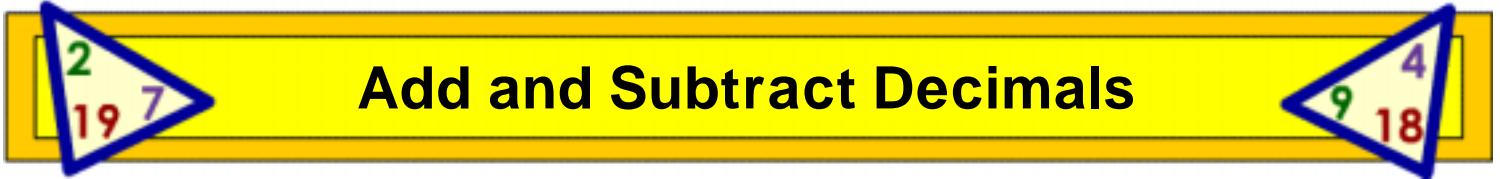
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$$\begin{array}{r} 2.9 \\ - 2.89 \\ \hline \end{array}$$

D. $6.26 - 4.003 =$ _____

$3.235 - 2.45 =$ _____

$2.054 - 1.5 =$ _____



Add and Subtract Decimals

Solve.

E. How much faster was Pedro than Jack?

100-Meter Dash Times (in seconds)	
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Meredith	12.08
Kyle	12.58
Jill	15.45
Pedro	13.2
Raven	13.089
Benny	13.9

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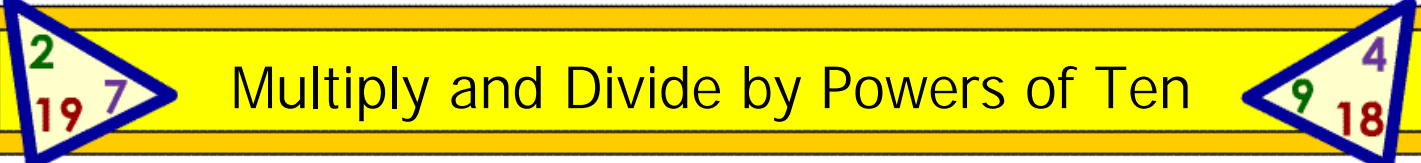
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 745 \\
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$1 + 1 + 4 + 1 = 7$

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 576 \\
 - 217 \\
 \hline
 359
 \end{array}$$

$5 + 7 + 6 = 18$ $1 + 8 = 9$
 $9 - 1 = 8$
 $3 + 5 = 8$



Multiply and Divide by Powers of Ten

Multiply. Then write a rule for multiplying by powers of ten.

A. $3 \times 1 = \underline{3}$

$3 \times 10 = \underline{30}$

$3 \times 100 = \underline{300}$

$3 \times 1000 = \underline{3000}$

$5.2 \times 1 = \underline{5.2}$

$5.2 \times 10 = \underline{52}$

$5.2 \times 100 = \underline{520}$

$5.2 \times 1000 = \underline{5200}$

$0.417 \times 1 = \underline{0.417}$

$0.417 \times 10 = \underline{4.17}$

$0.417 \times 100 = \underline{41.7}$

$0.417 \times 1000 = \underline{417}$

Rule: **Move the decimal point to the right one place for each zero in the power of ten.**

Find the product.

B. $3.21 \times 100 = \underline{321}$

$16.03 \times 10 = \underline{160.3}$

$0.023 \times 1000 = \underline{23}$

C. $0.14 \times 1000 = \underline{140}$

$2.14 \times 100 = \underline{214}$

$1.032 \times 10 = \underline{10.32}$

D. $5.84 \times 100 = \underline{584}$

$0.006 \times 1000 = \underline{6}$

$0.208 \times 10 = \underline{2.08}$

Divide. Then write a rule for dividing by powers of ten.

E. $2 \div 1 = \underline{2}$

$2 \div 10 = \underline{0.2}$

$2 \div 100 = \underline{0.02}$

$2 \div 1000 = \underline{0.002}$

$1.8 \div 1 = \underline{1.8}$

$1.8 \div 10 = \underline{0.18}$

$1.8 \div 100 = \underline{0.018}$

$1.8 \div 1000 = \underline{0.0018}$

$0.61 \div 1 = \underline{0.61}$

$0.61 \div 10 = \underline{0.061}$

$0.61 \div 100 = \underline{0.0061}$

$0.61 \div 1000 = \underline{0.00061}$

Rule: **Move the decimal point to the left one place for each zero in the power of ten.**

Find the quotient.

F. $0.42 \div 100 = \underline{0.0042}$

$0.41 \div 10 = \underline{0.041}$

$6.085 \div 1000 = \underline{0.006085}$

G. $2.09 \div 1000 = \underline{0.00209}$

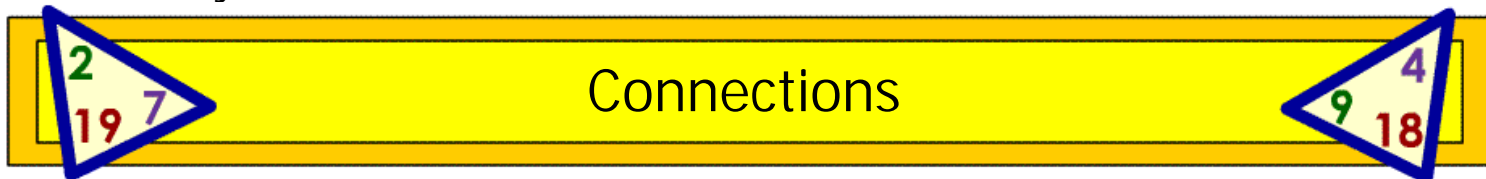
$0.015 \div 100 = \underline{0.00015}$

$5.09 \div 10 = \underline{0.509}$

H. $21.4 \div 100 = \underline{0.214}$

$11.52 \div 1000 = \underline{0.01152}$

$145.6 \div 10 = \underline{14.56}$



Think About It

How can the powers of ten help you multiply by multiples of ten? Use the problem 6×40 to explain your thinking.

SAMPLE RESPONSE: To multiply by multiples of ten, first write the factor that is a multiple of ten as two factors, one being ten. Next, use the Associative Property and group the factors so that the 10 is by itself. Multiply the grouped factors. Then, multiply the partial product by 10 using the rules for multiplying by a power of ten.

Example: $6 \times 40 = 6 \times 4 \times 10 = (6 \times 4) \times 10 = 24 \times 10 = 240$

EmPOWERing Vocabulary

Multiplying by powers of ten can produce very large numbers in the thousands, millions, and even billions. Did you ever wonder about even larger numbers? Research the period names of these very large numbers.

10^3 _____ ***thousands***

10^6 _____ ***millions***

10^9 _____ ***billions***

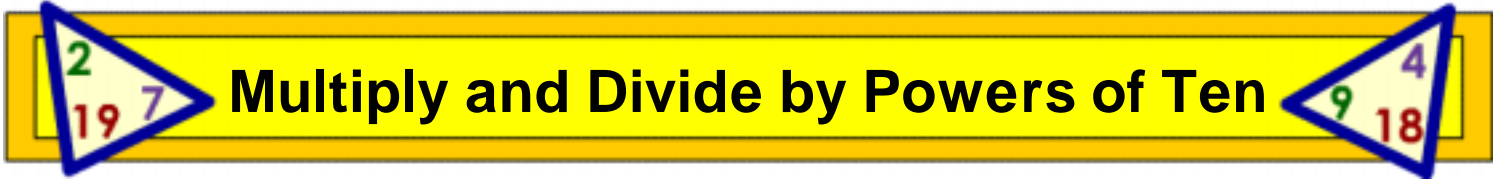
10^{12} _____ ***trillions***

10^{15} _____ ***quadrillions***

10^{18} _____ ***quintillions***

10^{21} _____ ***sextillions***

10^{24} _____ ***septillions***



Multiply and Divide by Powers of Ten

Multiply. Then write a rule for multiplying by powers of ten.

A. $3 \times 1 = \underline{\quad 3 \quad}$	$5.2 \times 1 = \underline{\hspace{2cm}}$	$0.417 \times 1 = \underline{\hspace{2cm}}$
$3 \times 10 = \underline{\hspace{2cm}}$	$5.2 \times 10 = \underline{\hspace{2cm}}$	$0.417 \times 10 = \underline{\hspace{2cm}}$
$3 \times 100 = \underline{\hspace{2cm}}$	$5.2 \times 100 = \underline{\hspace{2cm}}$	$0.417 \times 100 = \underline{\hspace{2cm}}$
$3 \times 1000 = \underline{\hspace{2cm}}$	$5.2 \times 1000 = \underline{\hspace{2cm}}$	$0.417 \times 1000 = \underline{\hspace{2cm}}$

Rule:

Find the product.

B. $3.21 \times 100 = \underline{\hspace{2cm}}$	$16.03 \times 10 = \underline{\hspace{2cm}}$	$0.023 \times 1000 = \underline{\hspace{2cm}}$
C. $0.14 \times 1000 = \underline{\hspace{2cm}}$	$2.14 \times 100 = \underline{\hspace{2cm}}$	$1.032 \times 10 = \underline{\hspace{2cm}}$
D. $5.84 \times 100 = \underline{\hspace{2cm}}$	$0.006 \times 1000 = \underline{\hspace{2cm}}$	$0.208 \times 10 = \underline{\hspace{2cm}}$

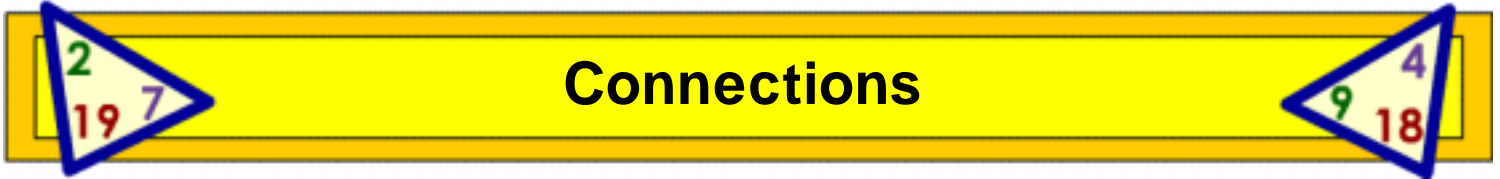
Divide. Then write a rule for dividing by powers of ten.

E. $2 \div 1 = \underline{\hspace{2cm}}$	$1.8 \div 1 = \underline{\hspace{2cm}}$	$0.61 \div 1 = \underline{\hspace{2cm}}$
$2 \div 10 = \underline{\hspace{2cm}}$	$1.8 \div 10 = \underline{\hspace{2cm}}$	$0.61 \div 10 = \underline{\hspace{2cm}}$
$2 \div 100 = \underline{\hspace{2cm}}$	$1.8 \div 100 = \underline{\hspace{2cm}}$	$0.61 \div 100 = \underline{\hspace{2cm}}$
$2 \div 1000 = \underline{\hspace{2cm}}$	$1.8 \div 1000 = \underline{\hspace{2cm}}$	$0.61 \div 1000 = \underline{\hspace{2cm}}$

Rule:

Find the quotient.

F. $0.42 \div 100 = \underline{\quad 0.0042 \quad}$	$0.41 \div 10 = \underline{\hspace{2cm}}$	$6.085 \div 1000 = \underline{\hspace{2cm}}$
G. $2.09 \div 1000 = \underline{\hspace{2cm}}$	$0.015 \div 100 = \underline{\hspace{2cm}}$	$5.09 \div 10 = \underline{\hspace{2cm}}$
H. $21.4 \div 100 = \underline{\hspace{2cm}}$	$11.52 \div 1000 = \underline{\hspace{2cm}}$	$145.6 \div 10 = \underline{\hspace{2cm}}$

**Think About It**

How can the powers of ten help you multiply by multiples of ten? Use the problem 6×40 to explain your thinking.

EmPOWERing Vocabulary

Multiplying by powers of ten can produce very large numbers in the thousands, millions, and even billions. Did you ever wonder about even larger numbers? Research the period names of these very large numbers.

10^3 _____ ***thousands***

10^6 _____ ***millions***

10^9 _____ ***billions***

10^{12} _____

10^{15} _____

10^{18} _____

10^{21} _____

10^{24} _____



Multiply Decimals by Decimals

Indicate the number of places that are required to the right of the decimal point in the product.

A. 2.34×0.2 3

445.1×0.34 3

0.3×13 1

B. 3.47×5 2

0.152×0.12 5

62.012×0.42 5

C. 6.084×0.7 4

1.5×0.715 4

7.58×0.985 5

Find the product.

D.
$$\begin{array}{r} 3.4 \\ \times 1.2 \\ \hline 68 \\ 340 \\ \hline 4.08 \end{array}$$

$$\begin{array}{r} 5.02 \\ \times 1.21 \\ \hline 6.0742 \end{array}$$

$$\begin{array}{r} 1.234 \\ \times 0.04 \\ \hline 0.04936 \end{array}$$

$$\begin{array}{r} 9.4 \\ \times 0.9 \\ \hline 8.46 \end{array}$$

E.
$$\begin{array}{r} 53.4 \\ \times 8.3 \\ \hline 443.22 \end{array}$$

$$\begin{array}{r} 0.982 \\ \times 0.58 \\ \hline 0.56956 \end{array}$$

$$\begin{array}{r} 0.879 \\ \times 5 \\ \hline 4.395 \end{array}$$

$$\begin{array}{r} 0.47 \\ \times 9.3 \\ \hline 4.371 \end{array}$$



Multiply Decimals by Decimals

Solve

- F. Bruce purchased 3.5 pounds of grapes at \$1.19 per pound. How much did Bruce spend on grapes? Round your answer to the nearest cent.

Bruce spent \$4.17 on grapes.

$$3.5 \text{ pounds} \times \$1.19 \text{ per pound} = \$4.165 \approx \$4.17$$

- G. The cost of the new bike Jill plans to purchase is \$119.50. The sales tax is 6% or 0.06. Sales tax is found by multiplying the amount of the tax by the price of the item. How much will Jill pay in sales tax if she purchases the bike? Round your answer to the nearest cent.


Jill will pay \$7.17 in sales tax if she purchases the bike.

$$\$119.50 \times 0.06 = \$7.17$$

- H. Derek's time in the 50-yard dash is 11.05 seconds. What is his sister's time if it is 0.89 of Derek's time?

His sister's time in the 50-yard dash is 9.8345 seconds.

$$11.05 \text{ seconds} \times 0.89 = 9.8345 \text{ seconds}$$



Connections



Think About It

Why should the decimal point be placed in the product after the multiplication is complete?

SAMPLE RESPONSE: The decimal point should be placed in the product after the multiplication is complete because you may have to add zeroes to hold the place value of some numbers.

Example: 0.04

$\times 0.02$

0.0008 (zeroes used to hold the place value)

Notice that the product only has 1 digit but the problem requires 3 decimal places to the right of the decimal point. Zeroes will have to be used to hold the places.

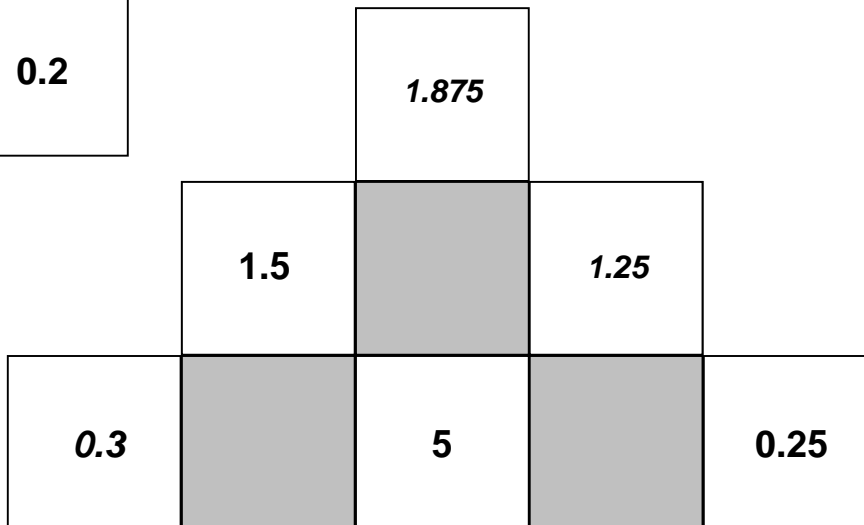
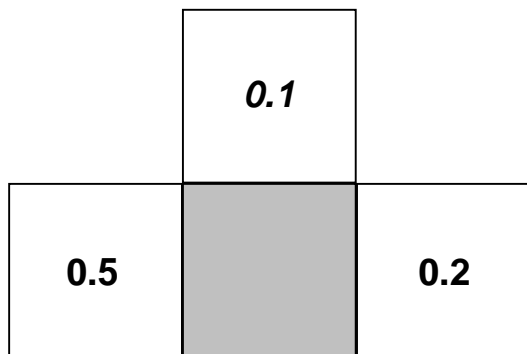
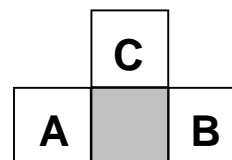
Decimal Pyramids

Fill in the missing number in each pyramid using the rules.

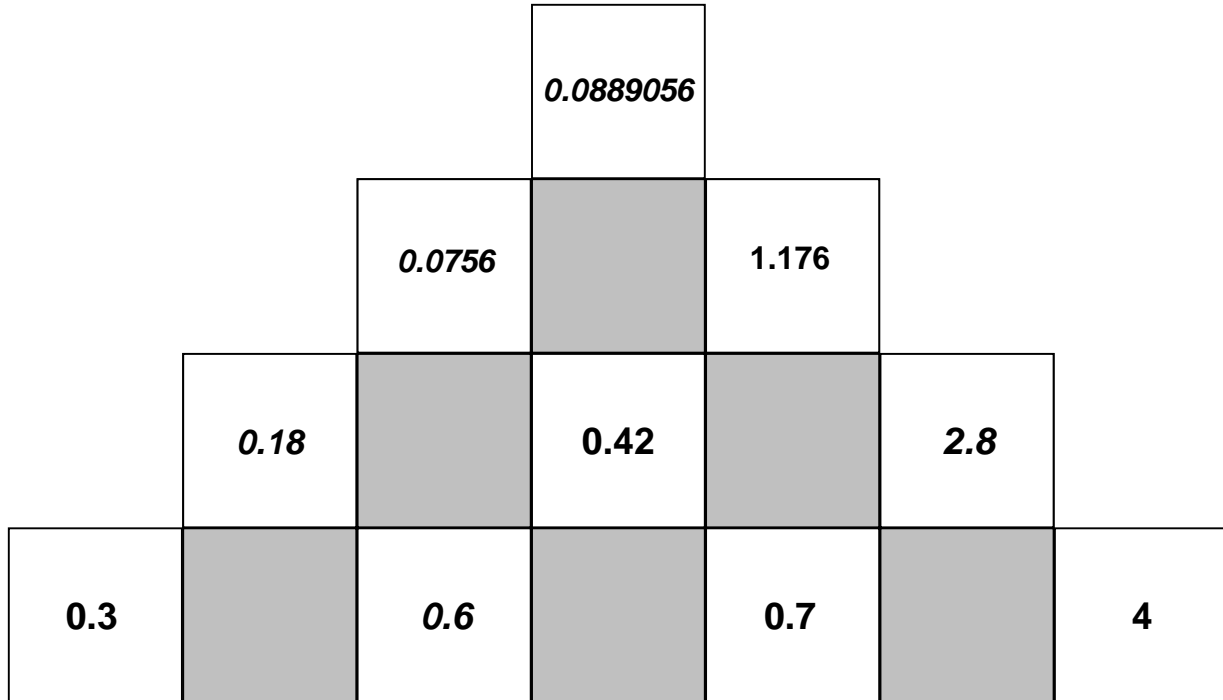
Rules: $A \times B = C$

$C \div A = B$

$C \div B = A$



Connections





Multiply Decimals by Decimals

Indicate the number of places that are required to the right of the decimal point in the product.

A. 2.34×0.2 3

445.1×0.34 _____

0.3×13 _____

B. 3.47×5 _____

0.152×0.12 _____

62.012×0.42 _____

C. 6.084×0.7 _____

1.5×0.715 _____

7.58×0.985 _____

Find the product.

D.
$$\begin{array}{r} 3.4 \\ \times 1.2 \\ \hline 68 \\ 340 \\ \hline 4.08 \end{array}$$

$$\begin{array}{r} 5.02 \\ \times 1.21 \\ \hline \end{array}$$

$$\begin{array}{r} 1.234 \\ \times 0.04 \\ \hline \end{array}$$

$$\begin{array}{r} 9.4 \\ \times 0.9 \\ \hline \end{array}$$

E.
$$\begin{array}{r} 53.4 \\ \times 8.3 \\ \hline \end{array}$$

$$\begin{array}{r} 0.982 \\ \times 0.58 \\ \hline \end{array}$$

$$\begin{array}{r} 0.879 \\ \times 5 \\ \hline \end{array}$$


$$\begin{array}{r} 0.47 \\ \times 9.3 \\ \hline \end{array}$$




Multiply Decimals by Decimals

Solve

- F. Bruce purchased 3.5 pounds of grapes at \$1.19 per pound. How much did Bruce spend on grapes? Round your answer to the nearest cent.
- G. The cost of the new bike Jill plans to purchase is \$119.50. The sales tax is 6% or 0.06. Sales tax is found by multiplying the amount of the tax by the price of the item. How much will Jill pay in sales tax if she purchases the bike? Round your answer to the nearest cent.
- H. Derek's time in the 50-yard dash is 11.05 seconds. What is his sister's time if it is 0.89 of Derek's time?



Connections



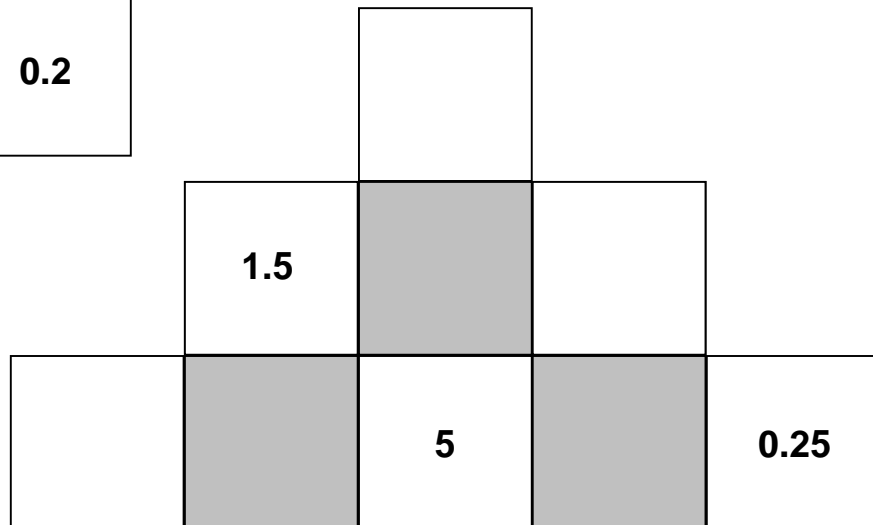
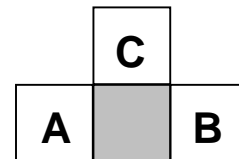
Think About It

Why should the decimal point be placed in the product after the multiplication is complete?

Decimal Pyramids

Fill in the missing number in each pyramid using the rules.

Rules: $A \times B = C$ $C \div A = B$ $C \div B = A$



2
19 7

Fractions, Decimals and Percents

4
9 18

Write each decimal as a percent.

A. 0.45 45%

0.23 23%

0.78 78%

B. 0.04 4%

0.8 80%

1.16 116%

Write each percent as a decimal.

C. 98% 0.98

12% 0.12

38% 0.38

D. 7% 0.07

10% 0.1

125% 1.25

Write each fraction as a percent.

E. $\frac{3}{4}$ 75%

$\frac{1}{4}$ 25%

$\frac{2}{10}$ 20%

F. $\frac{3}{8}$ 37.5%

$\frac{1}{2}$ 50%

$\frac{12}{4}$ 300%

Write each percent as a fraction. Simplify your answer.

G. 25% $\frac{1}{4}$

30% $\frac{3}{10}$

150% $1\frac{1}{2}$

H. 45% $\frac{9}{20}$

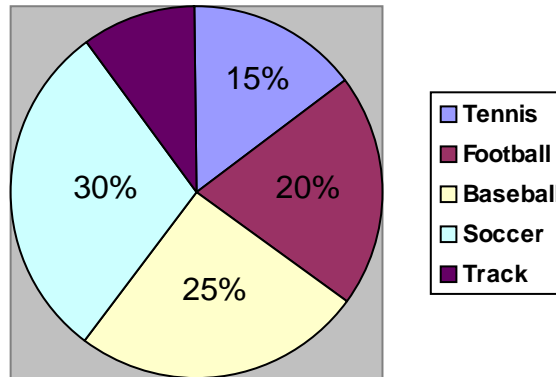
5% $\frac{1}{20}$

225% $2\frac{1}{4}$

Fractions, Decimals and Percents

Using the circle graph, answer the following questions.

AFTER SCHOOL SPORTS



I. What percent of students participate in track?

10% of the students participate in track.

J. What fraction of students plays tennis?

$\frac{3}{20}$ of the students play tennis.

K. What is the decimal amount of students who play soccer?

0.3 of the students play soccer.

L. Which 2 sports represent 50% of the students who play after school sports?

Soccer and football represent 50% of the students who play after school sports.

M. Which sport represents one-fourth of the students who play after school sports?

Baseball represents one-fourth of the students who play after school sports.



Solve.

- N. Todd finished 54% of his homework while Joe finished $\frac{3}{5}$ of his homework. Who finished more of the homework, Todd or Joe?

Joe finished more of the homework.

$$\frac{3}{5} = 60\%$$

$$54\% < 60\%$$

- O. If Joe finished $\frac{3}{5}$ of his homework, what percent does he have left to finish?

Joe has 40% of his homework left to finish.

$$\frac{3}{5} = 60\%$$

$$100\% - 60\% = 40\%$$

- P. Mary Beth used 0.85 of her eye contact solution. What percent does she have left?

Mary Beth has 15% of her eye contact solution left.

$$0.85 = 85\%$$

$$100\% - 85\% = 15\%$$

- Q. According to Mrs. Smith, 25% of her students earned an A on the math test while half of the students earned a B. Only 0.15 of the students earned C's while the rest earned D's on the same test. What percent of the students earned D's on the math test?

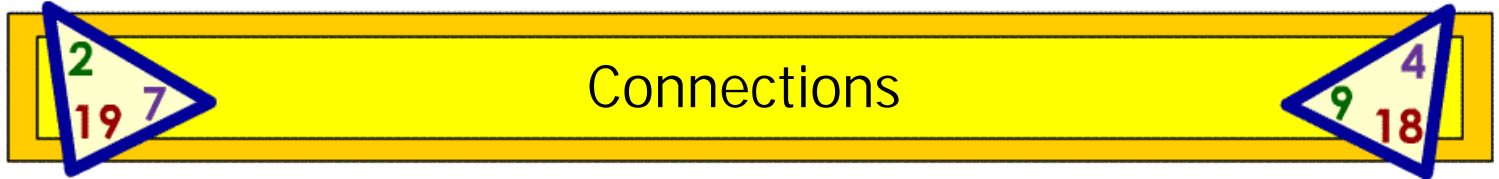
10% of the students earned D's on the math test.

$$A = 25\%$$

$$B = \text{half} = 50\%$$

$$C = 0.15 = 15\%$$

$$D = 100\% - (25\% + 50\% + 15\%) = 100\% - 90\% = 10\%$$



Think About It

Mark conducted a class survey about weekend activities and shared his results with the class. He stated that 32% of the students played sports on the weekend, 44% enjoy going to the movies, 23% like to shop, and 15% of the students read. Does this make sense? Explain your thinking.

SAMPLE RESPONSE: *Although the sum of the percentages is greater than 100%, the results of the survey do make sense. Several students may have selected more than one weekend activity, which would make the total greater than 100%.*

Percent on a Hundreds Chart

A hundreds chart shows the numbers from 1 to 100. Although each number is unique, many of them share characteristics. Find the most popular characteristic by determining the percent of numbers that are:

1. Odd numbers 50%
2. Even numbers 50%
3. Multiples of 3 33%
4. Prime numbers 25%
5. Numbers > 75 25%
6. Factors of 100 9%
7. Numbers with a 5 18%
8. Multiples of 2 50%
9. Numbers < 18 17%

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Fractions, Decimals and Percents

Write each decimal as a percent.

A. 0.45 _____

0.23 _____

0.78 _____

B. 0.04 _____

0.8 _____

1.16 _____

Write each percent as a decimal.

C. 98% _____

12% _____

38% _____

D. 7% _____

10% _____

125% _____

Write each fraction as a percent.

E. $\frac{3}{4}$ _____

$\frac{1}{4}$ _____

$\frac{2}{10}$ _____

F. $\frac{3}{8}$ _____

$\frac{1}{2}$ _____

$\frac{12}{4}$ _____

Write each percent as a fraction. Simplify your answer.

G. 25% $\frac{1}{4}$ _____

30% _____

150% _____

H. 45% _____

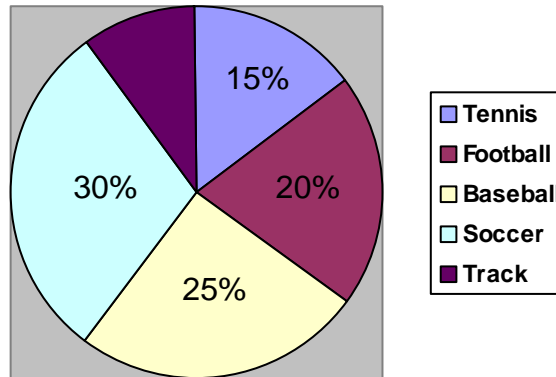
5% _____

225% _____

Fractions, Decimals and Percents

Using the circle graph, answer the following questions.

AFTER SCHOOL SPORTS




- I. What percent of students participate in track?
- J. What fraction of students plays tennis?
- K. What is the decimal amount of students who play soccer?
- L. Which 2 sports represent 50% of the students who play after school sports?
- M. Which sport represents one-fourth of the students who play after school sports?




Fractions, Decimals and Percents

Solve.

- N. Todd finished 54% of his homework while Joe finished $\frac{3}{5}$ of his homework. Who finished more of the homework, Todd or Joe?
- O. If Joe finished $\frac{3}{5}$ of his homework, what percent does he have left to finish?
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Connections



Think About It

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1. Odd numbers 50%
2. Even numbers _____
3. Multiples of 3 _____
4. Prime numbers _____
5. Numbers > 75 _____
6. Factors of 100 _____
7. Numbers with a 5 _____
8. Multiples of 2 _____
9. Numbers < 18 _____

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Division and Decimal Remainders

Find each quotient. All remainders must be written in decimal form.

A. $5 \overline{)436}$ 87.2

B. $4 \overline{)478}$ 119.5

C. $8 \overline{)514}$ 64.25

D. $25 \overline{)865}$ 34.6

E. $54 \overline{)891}$ 16.5

F. $15 \overline{)486}$ 32.4

Solve each problem. Write the answer in decimal form.

- G. Several colleagues enjoyed an expensive dinner. When the check arrived, all 4 decided to share the check and tip equally. A \$15 tip was left and the check totalled \$84. How much did each colleague spend for dinner?

Each colleague spent \$24.75 for dinner.
 $\$15 + \$84 = \$99$
 $\$99 \div 4 = \24.75

- H. Mark is building several birdhouses. He has 240 inches of wood and he needs 50 pieces to make 5 birdhouses. How long must each piece be in order to cut 50 equal pieces?

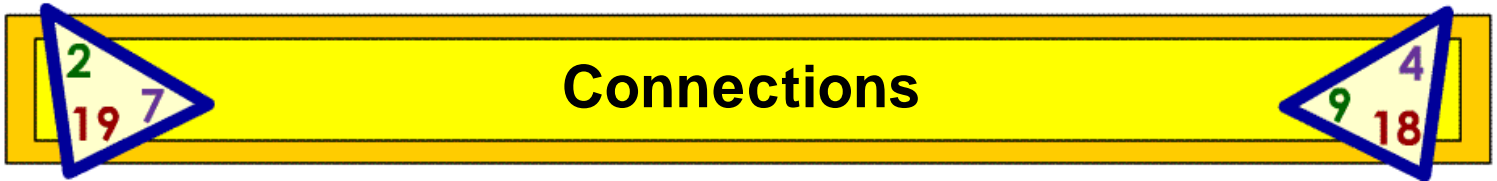
Each piece must be 4.8 inches long.
 $240 \div 50 = 4.8$ inches

- I. Sue completes a division problem with a divisor of 36. The quotient is 34 R9. Write the quotient in decimal form. What is the dividend?

The dividend is 1,233.
 $36 \times 34 + 9 = 1,233$
 $1,233 \div 36 = 34.25$

- J. The quotient to a division problem is 24.75. The divisor is 40. What is the dividend?

The dividend is 990.
 $24.75 \times 40 = 990$

**Think About It**

When would it be necessary to show the quotient of a division problem in decimal form instead of as whole number with a remainder?

SAMPLE RESPONSE: *When you want to use the quotient to calculate another value, you need the decimal value of the quotient so that you can add, subtract, multiply, or divide with it. It is easier to compare quotients that have decimal remainders, because you don't know if 7 R3 is greater than 7 R2. It depends upon what the divisor was.*

Patterns in Decimals

Sometimes, when the remainder of a division problem is written in decimal form, a numeric pattern occurs. Look at the examples below.

$$104 \div 11 = 9.545454\dots$$

$$502 \div 33 = 15.212121\dots$$

$$383 \div 27 = 14.185185\dots$$

Do any of these problems result in a decimal that forms a repeating pattern? Circle the problems that result in a repeating pattern. Find the special symbol that means a decimal is repeating.

$$\begin{array}{r} 15.25 \\ 32 \overline{)488} \end{array}$$

$$\begin{array}{r} 75.2727\dots \\ 11 \overline{)828} \end{array}$$

$$\begin{array}{r} 5.1717\dots \\ 99 \overline{)512} \end{array}$$

$$\begin{array}{r} 9.0909\dots \\ 33 \overline{)300} \end{array}$$

Solution

Placing a bar over the digits that repeat shows that it is a repeating decimal.

Example: $75.2727\dots$ may be written as $75.\overline{27}$

More to Think About

Can you find an example of a division problem that yields a decimal that does not end and does not repeat?



Division and Decimal Remainders

Find each quotient. All remainders must be written in decimal form.

A. $5 \overline{)436}$ ^{87.2}

B. $4 \overline{)478}$

C. $8 \overline{)514}$

D. $25 \overline{)865}$

E. $54 \overline{)891}$

F. $15 \overline{)486}$

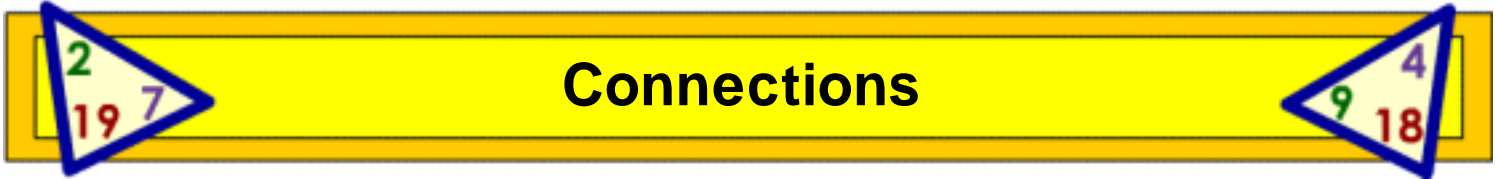
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$32 \overline{)488}$

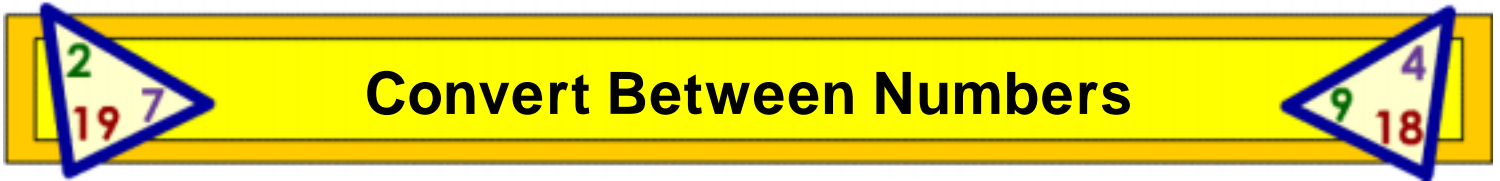
$11 \overline{)828}$

$99 \overline{)512}$

$33 \overline{)300}$

More to Think About

Can you find an example of a division problem that yields a decimal that does not end and does not repeat?



Convert Between Numbers

Write each decimal or fraction as a percent.

A. $0.73 = \underline{73\%}$

$0.07 = \underline{7\%}$

$0.3 = \underline{30\%}$

$0.52 = \underline{52\%}$

B. $\frac{1}{20} = \underline{5\%}$

$\frac{3}{5} = \underline{60\%}$

$\frac{6}{25} = \underline{24\%}$

$\frac{7}{8} = \underline{87.5\%}$

Write each percent as a decimal and a simplified fraction.

C. $32\% = \underline{0.32 \quad \frac{8}{25}}$

$4\% = \underline{0.04 \quad \frac{1}{25}}$

$80\% = \underline{0.8 \quad \frac{4}{5}}$

D. $65\% = \underline{0.65 \quad \frac{13}{20}}$

$8.5\% = \underline{0.085 \quad \frac{17}{200}}$

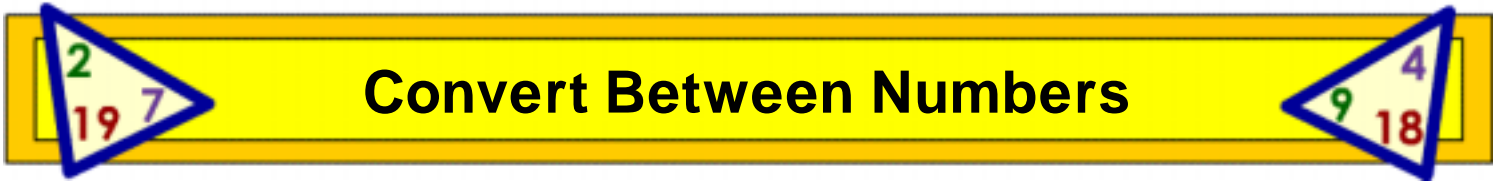
$37.5\% = \underline{0.375 \quad \frac{3}{8}}$

Order the numbers from least to greatest.

E. $0.3, 0.09, \frac{1}{5}, 18\%$ $0.09, 18\%, \frac{1}{5}, 0.3$

F. $65\%, \frac{3}{4}, 0.7, 7.5\%$ $7.5\%, 65\%, 0.7, \frac{3}{4}$

G. $\frac{7}{8}, 85\%, 0.9, \frac{4}{5}$ $\frac{4}{5}, 85\%, \frac{7}{8}, 0.9$



Solve each problem.

- H. One hundred people were asked to taste test 2 new flavors of fruit juice. The results show that 38 people preferred flavor A and two-fifths of the people preferred flavor B. However, 22% were undecided. Which flavor was most preferred?

Flavor B was preferred.

flavor A = 38 out of 100 people = 38%

flavor B = $\frac{2}{5}$ of the people = 40%

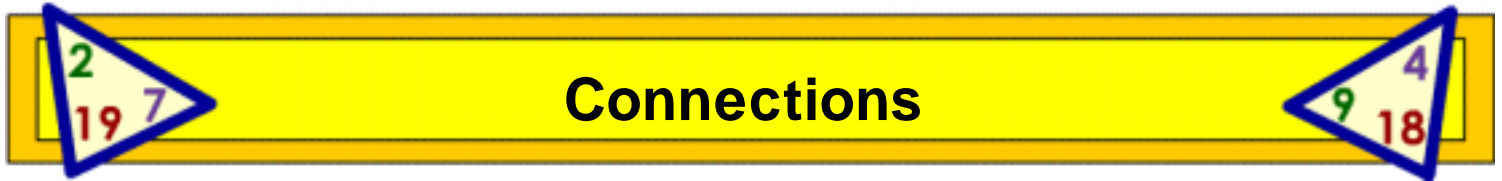
undecided = 22%

- I. Tanya got 17 out of 20 questions correct on her math test and Lydia answered 87% of the questions correctly. Which student earned the higher grade?

Lydia earned the higher score.

Tanya's score = 17 correct out of 20 = 85% correct

Lydia's score = 87% correct

**Think About It**

State whether each situation is possible or not. Explain your reasoning.

- A. During lunch, half of the students ordered pizza, 22% of the students ordered turkey sandwiches and 45% of the students ordered fries.
- B. During first period, 30% of the students have Math, one-fourth of the students have Science, 15% of the students have English, and two-fifths of the students have Social Studies.

SAMPLE RESPONSE: *Although 50% (half the students), 22%, and 45% is greater than 100%, situation A is still possible because students may have ordered more than 1 lunch item. However, situation B is not possible, because the total number of students is greater than 100% and a student cannot be in 2 places at the same time.*

Just for Fun

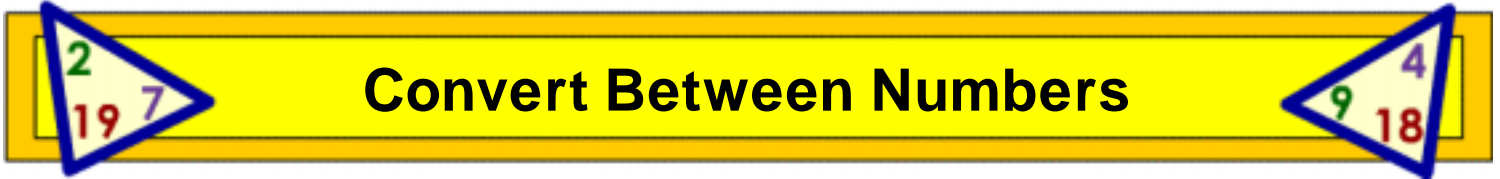
Match the percent to the equivalent fraction or decimal to solve the riddle.

1	2	3	4	5	6	7	8	9	10	11
37.5%	2%	80%	15%	40%	28%	4%	20%	95%	12.5%	50%

$\frac{4}{5}$	0.02	0.5	$\frac{3}{8}$	0.95	$\frac{3}{20}$	$\frac{1}{8}$	0.04	$\frac{2}{5}$	$\frac{7}{25}$	0.2
S	G	Y	T	H	E	R	O	P	A	N

Secret society of mathematicians that studied geometric ratios

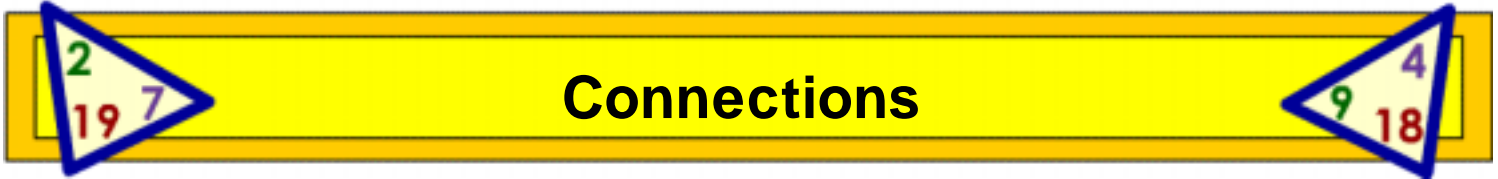
P	Y	T	H	A	G	O	R	E	A	N	S
$\frac{5}{5}$	$\frac{11}{11}$	$\frac{1}{1}$	$\frac{9}{9}$	$\frac{6}{6}$	$\frac{2}{2}$	$\frac{7}{7}$	$\frac{10}{10}$	$\frac{4}{4}$	$\frac{6}{6}$	$\frac{8}{8}$	$\frac{3}{3}$



Solve each problem.

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I. Tanya got 17 out of 20 questions correct on her math test and Lydia answered 87% of the questions correctly. Which student earned the higher grade?



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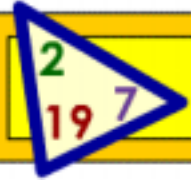
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Match the percent to the equivalent fraction or decimal to solve the riddle.

1	2	3	4	5	6	7	8	9	10	11
37.5%	2%	80%	15%	40%	28%	4%	20%	95%	12.5%	50%
$\frac{4}{5}$	0.02	0.5	$\frac{3}{8}$	0.95	$\frac{3}{20}$	$\frac{1}{8}$	0.04	$\frac{2}{5}$	$\frac{7}{25}$	0.2
S	G	Y	T	H	E	R	O	P	A	N

Secret society of mathematicians that studied geometric ratios

5 11 1 9 6 2 7 10 4 6 8 3



Multiply Decimals



Round each decimal to the given place values.

A. 0.04381	to the nearest hundredth	<u>0.04</u>
	to the nearest thousandth	<u>0.044</u>
	to the nearest ten-thousandth	<u>0.0438</u>
B. 0.864	to the nearest one	<u>1</u>
	to the nearest tenth	<u>0.9</u>
	to the nearest hundredth	<u>0.86</u>
C. 3.746	to the nearest one	<u>4</u>
	to the nearest tenth	<u>3.7</u>
	to the nearest hundredth	<u>3.75</u>
D. 15.008	to the nearest ten	<u>20</u>
	to the nearest tenth	<u>15.0</u>
	to the nearest hundredth	<u>15.01</u>
E. 2340.08	to the nearest hundred	<u>2300</u>
	to the nearest ten	<u>2340</u>
	to the nearest tenth	<u>2340.1</u>



Find the product. Be sure to check the reasonableness of the solution using estimation.

$$\begin{array}{r} \text{F. } 210 \\ \times 0.34 \\ \hline 71.40 \end{array}$$

$$\begin{array}{r} 0.268 \\ \times 0.72 \\ \hline 0.19296 \end{array}$$

$$\begin{array}{r} \text{G. } 2.33 \\ \times 4 \\ \hline 9.32 \end{array}$$

$$\begin{array}{r} 145.3 \\ \times 5.8 \\ \hline 842.74 \end{array}$$

$$\begin{array}{r} \text{H. } 80.05 \\ \times 20 \\ \hline 1601.00 \end{array}$$

$$\begin{array}{r} 0.035 \\ \times 31 \\ \hline 1.085 \end{array}$$

Solve.

- I. Kristen and Jorge went to the mall. Kristen spent \$23.57. Jorge spent 3 times more money than Kristen. How much money did Jorge spend?

Jorge spent \$70.71.

$$\mathbf{\$23.57 \times 3 = \$70.71}$$

- J. Marc's garden is 4.5 meters long and 1.25 meters wide. What is the area of Marc's garden?

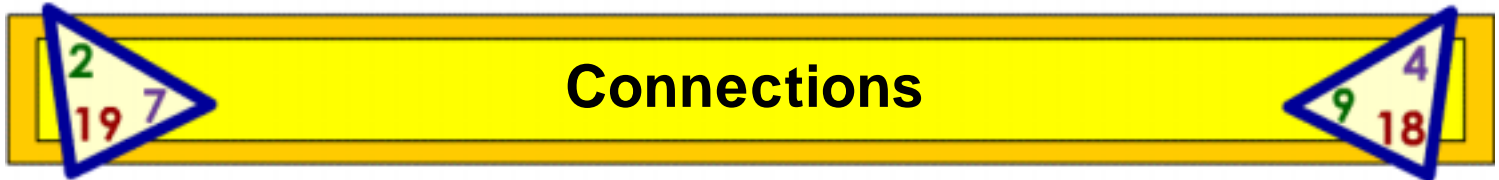
Marc's garden has an area of 5.625 square meters.

$$\mathbf{4.5 \text{ meters} \times 1.25 \text{ meters} = 5.625 \text{ square meters}}$$

- K. Muriel sold 124 boxes of cookies for the school fundraiser. Each box of cookies cost \$3.50. How much money did Muriel raise selling cookies?

Muriel raised \$434.00 selling cookies.

$$\mathbf{124 \times \$3.50 = \$434.00}$$

**Think About It**

When a number less than one is multiplied with a number greater than one, will the product be greater than or less than the larger factor? Explain how this can be true.

SAMPLE RESPONSE: *The product will always be less than the larger factor.*

Multiplying by a number less than one gives the same result as dividing by a number greater than one.

Example: $8 \times 0.5 = 4$ $8 \div 2 = 4$

Doublets

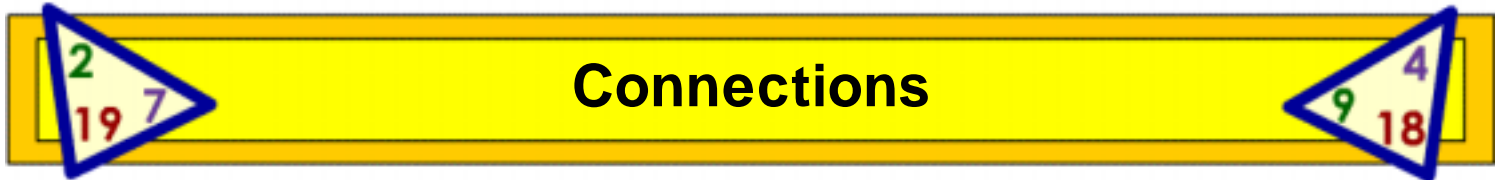
A doublet is a type of puzzle invented by Charles Dodgson (also known as Lewis Carroll, the author of *Alice's Adventures in Wonderland*). To solve a doublet puzzle, change one word to another through a series of stages. Only one letter may be changed at a time and each change must result in a new word.

Turn FOOT into SHOE

FOOT
SOOT
SHOT
SHOE

Try to create the new words with the fewest steps possible. There is often more than one way to reach the new word. Try to make up some of your own to entertain your friends and family.

Turn SIX into TEN
Turn BILL into COIN
Turn BOAT into LAKE
Turn ADD into SUM
Turn SNOW into BALL

Solution**SIX**

SIN

TIN

TEN**BILL**

PILL

POLL

POOL

COOL

COIL

COIN**BOAT**

COAT

COST

CAST

CASE

CAKE

LAKE**ADD**

AID

AIM

HIM

HUM

SUM**SNOW**

SLOW

SLOT

SOOT

BOOT

BOLT

BELT

BELL

BALL



Multiply Decimals

Round each decimal to the given place values.

A. 0.04381 to the nearest hundredth 0.04

to the nearest thousandth _____

to the nearest ten-thousandth _____

B. 0.864 to the nearest one _____

to the nearest tenth _____

to the nearest hundredth _____

C. 3.746 to the nearest one _____

to the nearest tenth _____

to the nearest hundredth _____

D. 15.008 to the nearest ten _____

to the nearest tenth _____

to the nearest hundredth _____

E. 2340.08 to the nearest hundred _____

to the nearest ten _____

to the nearest tenth _____



Find the product. Be sure to check the reasonableness of the solution using estimation.

$$\begin{array}{r} \text{F. } 210 \\ \times 0.34 \\ \hline 71.40 \end{array}$$

$$\begin{array}{r} 0.268 \\ \times 0.72 \\ \hline \end{array}$$

$$\begin{array}{r} \text{G. } 2.33 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 145.3 \\ \times 5.8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{H. } 80.05 \\ \times 20 \\ \hline \end{array}$$

$$\begin{array}{r} 0.035 \\ \times 31 \\ \hline \end{array}$$

Solve.

- I. Kristen and Jorge went to the mall. Kristen spent \$23.57. Jorge spent 3 times more money than Kristen. How much money did Jorge spend?
- J. Marc's garden is 4.5 meters long and 1.25 meters wide. What is the area of Marc's garden?
- K. Muriel sold 124 boxes of cookies for the school fundraiser. Each box of cookies cost \$3.50. How much money did Muriel raise selling cookies?

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Turn SIX into TEN
Turn BILL into COIN
Turn BOAT into LAKE
Turn ADD into SUM
Turn SNOW into BALL



Find the quotient.

A. $90 \div 2.5 = 36$

$253.8 \div 6 = 42.3$

B. $60.08 \div 8 = 7.51$

$3 \div 16 = 0.1875$

C. $320.32 \div 5.6 = 57.2$

$9 \div 40 = 0.225$

Solve.

- D. Regina's test scores for the semester are 92.3, 87.0, 94.6, 82.8, and 90.5. What is Regina's average test score for the semester?

Regina's average test score for the semester is 89.44.

$$92.3 + 87.0 + 94.6 + 82.8 + 90.5 = 447.2$$

$$447.2 \div 5 = 89.44$$

- E. Marcus has \$24.50 in quarters. How many quarters does Marcus have?

Marcus has 98 quarters.

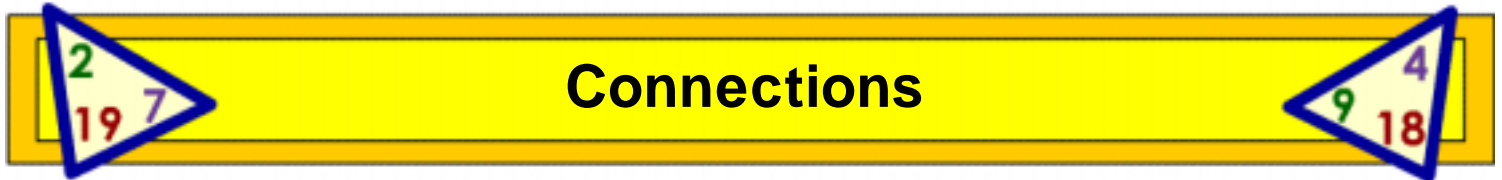
$$1 \text{ quarter} = \$0.25$$

$$\$24.50 \div \$0.25 = 98$$

- F. Janice has a piece of fabric that is 9 feet wide. In order to complete her class project, she needs 25 pieces of fabric that are equal widths. What width should she make the pieces of fabric?

Janice should make the pieces of fabric 0.36 foot wide.

$$9 \text{ feet} \div 25 = 0.36 \text{ foot}$$

**Think About It**

When a number greater than one is divided by a number less than one, will the quotient be greater than or less than the dividend? Explain how this can be true.

SAMPLE RESPONSE: *The quotient will always be greater than the dividend.*

Dividing by a number less than one gives the same result as multiplying by a number greater than one.

Example: $8 \div 0.5 = 16$ $8 \times 2 = 16$

Comparison Shopper

The unit price of an item tells how much one unit of the item costs. For example, a 5-pound sack of potatoes costs \$3.00. One pound of potatoes would cost \$0.60 ($\$3.00 \div 5$ pounds).

When grocery shopping, the unit price can be used to compare the value of similar items. Go to your local grocery store and survey 5 different items. Find the unit price for two different brands of each item and determine which brand is less expensive. Use this information to complete the chart below. Circle the unit price of the less expensive brand for each item.

When recording the item and the brand, be sure to include the size of the item. For example, if the item is salad dressing, record how many ounces the bottle contains.

Is the item with the lower unit price always the better buy? Why or why not?

Sample Response: *The item with the lower unit price is not always the better buy, because the more expensive item may have a higher quality. A shopper must consider the quality of the item being purchased, not just the price.*

2 **4**
19 **7** **9** **18**

Connections

Item	Brands	Total Price	Unit Price



Find the quotient.

A. $90 \div 2.5 = 36$

$253.8 \div 6 =$

B. $60.08 \div 8 =$

$3 \div 16 =$

C. $320.32 \div 5.6 =$

$9 \div 40 =$

Solve.

D. Regina's test scores for the semester are 92.3, 87.0, 94.6, 82.8, and 90.5. What is Regina's average test score for the semester?

E. Marcus has \$24.50 in quarters. How many quarters does Marcus have?

F. Janice has a piece of fabric that is 9 feet wide. In order to complete her class project, she needs 25 pieces of fabric that are equal widths. What width should she make the pieces of fabric?

**Think About It**

When a number greater than one is divided by a number less than one, will the quotient be greater than or less than the dividend? Explain how this can be true.

Comparison Shopper

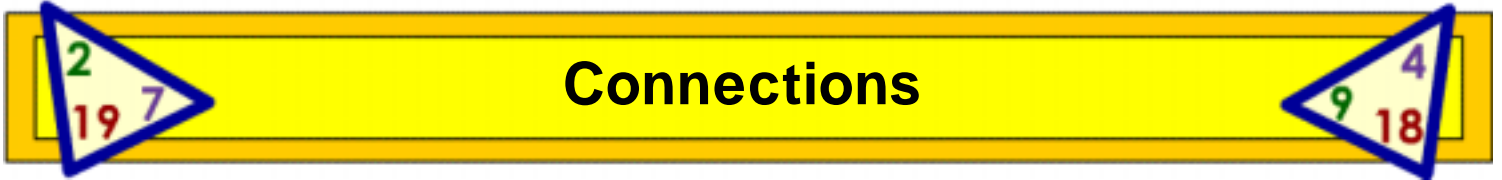
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Is the item with the lower unit price always the better buy? Why or why not?

Name _____ Date _____



Item	Brands	Total Price	Unit Price



Write each fraction in decimal form.

A. $\frac{16}{25} = 0.64$

$\frac{1}{5} = 0.2$

B. $\frac{3}{4} = 0.75$

$\frac{3}{8} = 0.375$

C. $\frac{26}{4} = 6.5$

$\frac{19}{8} = 2.375$

D. $4\frac{1}{8} = 4.125$

$15\frac{24}{25} = 15.96$

Write each decimal in fractional form. Write the fraction in simplest form.

E. $0.15 = \frac{3}{20}$

$0.8 = \frac{4}{5}$

F. $0.125 = \frac{1}{8}$

$0.25 = \frac{1}{4}$

G. $2.2 = 2\frac{1}{5}$

$4.05 = 4\frac{1}{20}$

H. $16.6 = 16\frac{3}{5}$

$3.625 = 3\frac{5}{8}$



Match each decimal with its corresponding fraction(s).

L, N 0.25

I. $\frac{2}{5}$

K, P 0.5

J. $\frac{3}{50}$

O 0.125

K. $\frac{1}{2}$

I, M 0.4

L. $\frac{1}{4}$

J, Q 0.06

M. $\frac{26}{65}$

N. $\frac{16}{64}$

O. $\frac{1}{8}$

P. $\frac{35}{70}$

Q. $\frac{6}{100}$



Think About It

Numbers can be written in fractional or decimal form and have the same value. Give an example of a situation in which it is more practical to write a number in fractional form, and a situation in which it is more practical to write a number in decimal form.

SAMPLE RESPONSE: When you are measuring the length of an object in inches, it is more practical to write the parts of an inch in fractional form because of the way a customary ruler is divided. It is easier to record $\frac{1}{8}$ inch or $\frac{1}{16}$ inch rather than 0.125 inch or 0.0625 inch.

When you are measuring the length of an object in centimeters, it is more practical to write the parts of a centimeter in decimal form since a metric ruler is based on increments of 10. It is easier to record 0.1 cm or 0.25 cm rather than $\frac{1}{10}$ cm or $\frac{25}{100}$ cm.

Number Match

Materials

8 fraction cards, 8 decimal cards, 2 players

Set-up

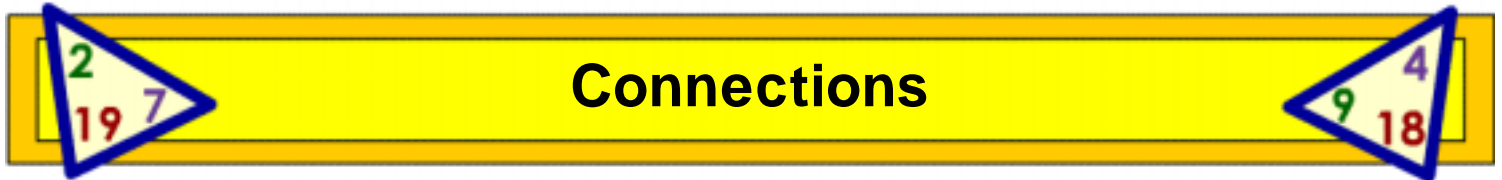
Cut out all 16 cards on the following page. (You may want to glue the cards to hard card stock to make them last longer.) Shuffle the cards and place them face down in a 4 x 4 array.

To Play

Player 1 flips two cards. If the values on the cards are equal, player 1 takes those cards and repeats the turn. If the values on the cards are not equal, player 1 flips the cards back over and player 2 takes the next turn. Once all cards have been cleared, the player in possession of the most cards wins. If each player has the same number of cards, play the tiebreaker.

Tiebreaker

The player who arranges his or her fraction cards in order from least to greatest in the shortest time is the winner.



0.5	0.25	0.125	0.75
0.2	0.875	0.8	0.375
$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{3}{4}$
$\frac{1}{5}$	$\frac{7}{8}$	$\frac{4}{5}$	$\frac{3}{8}$



Write each fraction in decimal form.

A. $\frac{16}{25} = 0.64$

$\frac{1}{5} =$

B. $\frac{3}{4} =$

$\frac{3}{8} =$

C. $\frac{26}{4} =$

$\frac{19}{8} =$

D. $4\frac{1}{8} =$

$15\frac{24}{25} =$

Write each decimal in fractional form. Write the fraction in simplest form.

E. $0.15 = \frac{3}{20}$

$0.8 =$

F. $0.125 =$

$0.25 =$

G. $2.2 =$

$4.05 =$

H. $16.6 =$

$3.625 =$



Match each decimal with its corresponding fraction(s).

 L, N 0.25

 0.5

 0.125

 0.4

 0.06

I. $\frac{2}{5}$

J. $\frac{3}{50}$

K. $\frac{1}{2}$

L. $\frac{1}{4}$

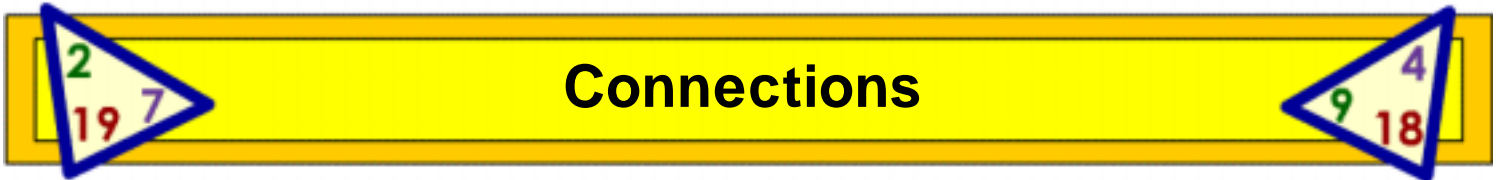
M. $\frac{26}{65}$

N. $\frac{16}{64}$

O. $\frac{1}{8}$

P. $\frac{35}{70}$

Q. $\frac{6}{100}$

**Think About It**

Numbers can be written in fractional or decimal form and have the same value. Give an example of a situation in which it is more practical to write a number in fractional form, and a situation in which it is more practical to write a number in decimal form.

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8 fraction cards, 8 decimal cards, 2 players

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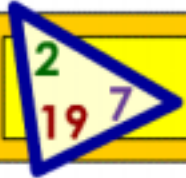
To Play

Player 1 flips two cards. If the values on the cards are equal, player 1 takes those cards and repeats the turn. If the values on the cards are not equal, player 1 flips the cards back over and player 2 takes the next turn. Once all cards have been cleared, the player in possession of the most cards wins. If each player has the same number of cards, play the tiebreaker.

Tiebreaker

The player who arranges his or her fraction cards in order from least to greatest in the shortest time is the winner.

Name _____ Date _____



Connections



0.5	0.25	0.125	0.75
0.2	0.875	0.8	0.375
$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{3}{4}$
$\frac{1}{5}$	$\frac{7}{8}$	$\frac{4}{5}$	$\frac{3}{8}$

2
19 7

Terminating and Repeating Decimals

4
9 18

Write each fraction in decimal form. Label the decimal as terminating or repeating.

A. $\frac{2}{3} = \underline{0.\overline{6}}$ repeating

$\frac{3}{4} = \underline{0.75}$ terminating

B. $\frac{5}{9} = \underline{0.\overline{5}}$ repeating

$\frac{3}{16} = \underline{0.1875}$ terminating

C. $\frac{3}{8} = \underline{0.375}$ terminating

$\frac{5}{6} = \underline{0.8\overline{3}}$ repeating

D. $\frac{12}{5} = \underline{2.4}$ terminating

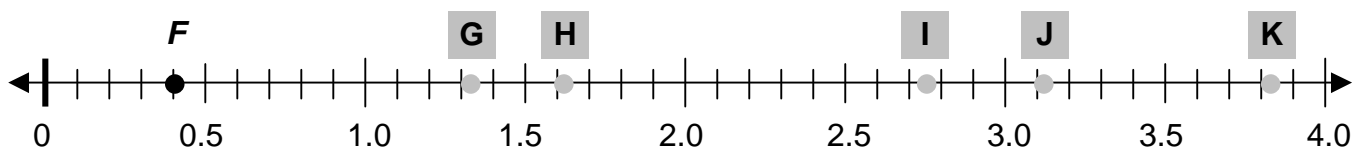
$\frac{21}{6} = \underline{3.5}$ terminating

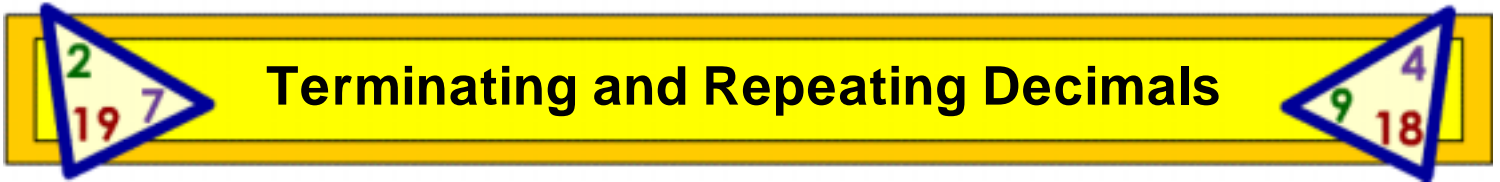
E. $1\frac{7}{8} = \underline{1.875}$ terminating

$5\frac{4}{9} = \underline{5.\overline{4}}$ repeating

Plot each fraction on the number line.

F. $\frac{2}{5}$ G. $1\frac{1}{3}$ H. $\frac{13}{8}$ I. $\frac{11}{4}$ J. $\frac{28}{9}$ K. $\frac{23}{6}$





Terminating and Repeating Decimals

Match each fraction with its corresponding decimal.

$$\underline{\text{Q}} \quad \frac{1}{8}$$

L. $0.58\bar{3}$

$$\underline{\text{T}} \quad \frac{1}{3}$$

M. $0.4\bar{}$

$$\underline{\text{S}} \quad \frac{1}{2}$$

N. $0.1\bar{6}$

$$\underline{\text{N}} \quad \frac{1}{6}$$

O. 0.25

$$\underline{\text{M}} \quad \frac{4}{9}$$

P. $0.5\bar{4}$

$$\underline{\text{U}} \quad \frac{3}{5}$$

Q. 0.125

$$\underline{\text{O}} \quad \frac{1}{4}$$

R. $0.4\bar{6}$

$$\underline{\text{L}} \quad \frac{7}{12}$$

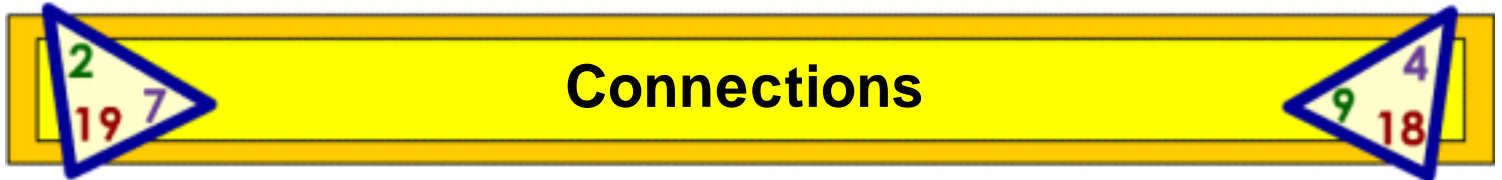
S. 0.5

$$\underline{\text{P}} \quad \frac{6}{11}$$

T. $0.\bar{3}$

$$\underline{\text{R}} \quad \frac{7}{15}$$

U. 0.6

**Think About It**

Decimal numbers that are non-terminating, non-repeating decimals are part of a set of number called irrational numbers. Irrational numbers cannot be written as fractions. Can these numbers be plotted on a number line? Explain why or why not.

SAMPLE RESPONSE: *These numbers cannot be plotted on the number line. Since these numbers do not have fractional values and their decimal values have an infinite number of digits, there is not a specific place on the number line they can exist.*

Dividing by 9

When dividing by 9, there is a special pattern that will occur after the decimal point. Complete the chart below and look for the special pattern.

Fractional Form	Decimal Form
$\frac{1}{9}$	$0.\bar{1}$
$\frac{2}{9}$	$0.\bar{2}$
$\frac{3}{9}$	$0.\bar{3}$
$\frac{4}{9}$	$0.\bar{4}$
$\frac{5}{9}$	$0.\bar{5}$
$\frac{6}{9}$	$0.\bar{6}$
$\frac{7}{9}$	$0.\bar{7}$
$\frac{8}{9}$	$0.\bar{8}$

Solution

The number that repeats after the decimal is the same as the numerator of its equivalent fraction.

2
19 7**Terminating and Repeating Decimals**4
9 18

Write each fraction in decimal form. Label the decimal as terminating or repeating.

A. $\frac{2}{3} = 0.\overline{6}$ *repeating*

$\frac{3}{4} =$ _____

B. $\frac{5}{9} =$ _____

$\frac{3}{16} =$ _____

C. $\frac{3}{8} =$ _____

$\frac{5}{6} =$ _____

D. $\frac{12}{5} =$ _____

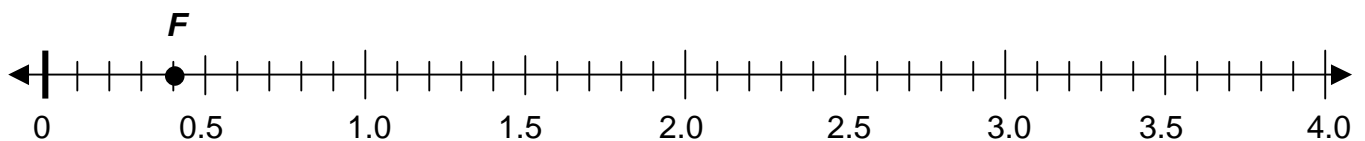
$\frac{21}{6} =$ _____

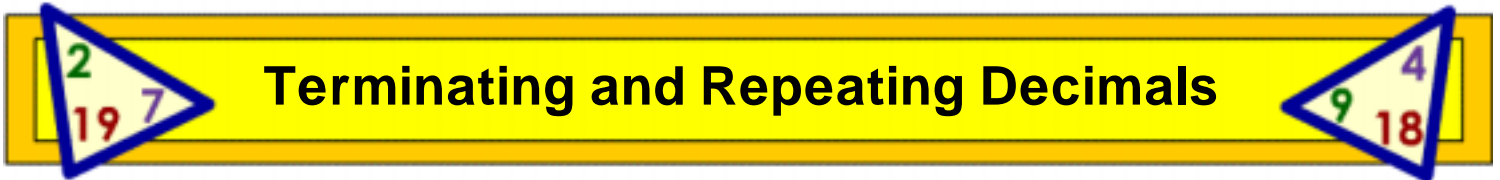
E. $1\frac{7}{8} =$ _____

$5\frac{4}{9} =$ _____

Plot each fraction on the number line.

F. $\frac{2}{5}$ G. $1\frac{1}{3}$ H. $\frac{13}{8}$ I. $\frac{11}{4}$ J. $\frac{28}{9}$ K. $\frac{23}{6}$





Terminating and Repeating Decimals

Match each fraction with its corresponding decimal.

_____ $\frac{1}{8}$

L. $0.58\bar{3}$

_____ $\frac{1}{3}$

M. $0.4\bar{}$

_____ $\frac{1}{2}$

N. $0.1\bar{6}$

_____ $\frac{1}{6}$

O. 0.25

_____ $\frac{4}{9}$

P. $0.5\bar{4}$

_____ $\frac{3}{5}$

Q. 0.125

_____ $\frac{1}{4}$

R. $0.4\bar{6}$

_____ $\frac{7}{12}$

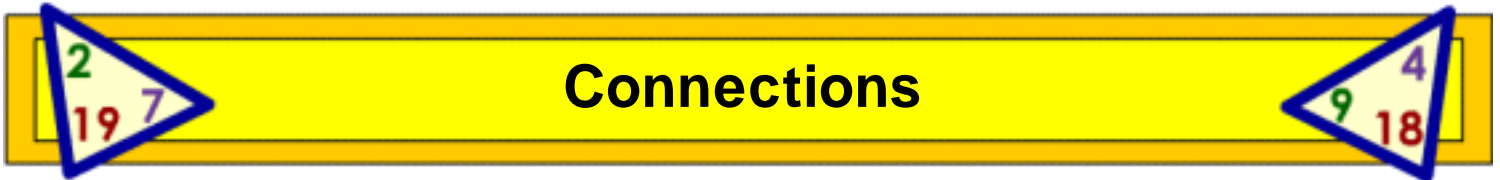
S. 0.5

_____ $\frac{6}{11}$

T. $0.\bar{3}$

_____ $\frac{7}{15}$

U. 0.6

**Think About It**

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Dividing by 9

When dividing by 9, there is a special pattern that will occur after the decimal point. Complete the chart below and look for the special pattern.

Fractional Form	Decimal Form
$\frac{1}{9}$	$0.\bar{1}$
$\frac{2}{9}$	
$\frac{3}{9}$	
$\frac{4}{9}$	
$\frac{5}{9}$	
$\frac{6}{9}$	
$\frac{7}{9}$	
$\frac{8}{9}$	



Look at the decimal numbers below. Write the numbers so that the decimal points are lined up in the box.

2.13 2.013 2.133 2.31

2	.	13
2	.	013
2	.	133
2	.	31

What are the steps involved in comparing decimal numbers?

Step 1: Sample answer: Line up the decimal points.

Step 2: Sample answer: Begin at the left and compare digits.

Step 3: Sample answer: Compare the different digits.

Look at the numbers below. Show each step as you compare the numbers.

3.4

3.4567

3.045

Step 1

Sample Answer:

3.4000
3.4567
3.0450

Step 2

Sample Answer:

3.4000
3.4567
3.0450
↑ compare this column first

3.4000
3.4567
↑ compare this column next

Step 3

Sample Answer:

compare first column:
0 < 4

So, 3.045 is the smallest #.

Compare next column:
0 < 5

which means 3.4 is the smaller #

So, 3.045 < 3.4 < 3.4567



Look at the numbers in the column below. Circle the first column of numbers from the left that has different digits. Compare the numbers in that column. Then identify the largest of the three numbers.

$\begin{matrix} 1.420 \\ 1.423 \\ 1.427 \end{matrix}$
0 < 3 < 7
The largest number is 1.427.

Compare the following decimal numbers. Line up the decimals, and write zeros where needed.

0.91	1.9	0.091	1.19	0.910
				1.900
				1.091
				1.190

Look at the decimal numbers above. Identify the smallest number. Then identify the largest number.

The smallest number is 0.91.

The largest number is 1.9.

Write the following decimal numbers in order from greatest to least.

3.14	3.41	3.014	1.341	1.031	3.114
3.41	3.14	3.114	3.014	1.341	1.031

Write the following decimal numbers in order from least to greatest.

6.17	0.671	1.76	6.071	7.6	6.701
0.71	1.76	6.071	6.17	6.701	7.6



Compare and Order Decimals

Circle the numbers below that are greater than 3.54.

- 3.615 3.45
 5.34
 4.35
 3.5
 3.53
 3.542

Circle the numbers below that are less than 2.31.

- 2.13 3.12
 2.031
 0.231
 1.234
 2.315
 2.213

3.106	3.016	3.1601
0.3106	3.1	3.161
3.106	0.0316	

Use the numbers in the box to answer these questions. Use each number only once.

1. Which numbers make the inequality true?

$$\underline{3.106} < \underline{3.16} < \underline{3.1601}$$

2. Which numbers make the inequality true?

$$\underline{3.1} < \underline{3.1006} < \underline{3.106}$$

3. Which numbers make the inequality true?

$$\underline{0.0316} < \underline{0.3016} < \underline{0.3106}$$

4. Which numbers make the inequality true?

$$\underline{3.016} < \underline{3.061} < \underline{3.161}$$



Look at the decimal numbers below. Write the numbers so that the decimal points are lined up in the box.

2.13 2.013 2.133 2.31

.
.
.
.

What are the steps involved in comparing decimal numbers?

Step 1: _____

Step 2: _____

Step 3: _____

Look at the numbers below. Show each step as you compare the numbers.

3.4

3.4567

3.045

Step 1

Step 2

Step 3



Look at the numbers in the column below. Circle the first column of numbers from the left that has different digits. Compare the numbers in that column. Then identify the largest of the three numbers.

1.420
 1.423
 1.427

_____ < _____ < _____ The largest number is _____ .

Compare the following decimal numbers. Line up the decimals, and write zeros where needed.

0.91 1.9 0.091 1.19

Look at the decimal numbers above. Identify the smallest number. Then identify the largest number.

The smallest number is _____ .

The largest number is _____ .

Write the following decimal numbers in order from greatest to least.

3.14 3.41 3.014 1.341 1.031 3.114

Write the following decimal numbers in order from least to greatest.

6.17 0.671 1.76 6.071 7.6 6.701



Compare and Order Decimals

Circle the numbers below that are greater than 3.54.

3.615 3.45 5.34 4.35 3.5 3.53 3.542

Circle the numbers below that are less than 2.31.

2.13 3.12 2.031 0.231 1.234 2.315 2.213

3.106	3.016	3.1601
0.3106	3.1	3.161
3.106	0.0316	

Use the numbers in the box to answer these questions. Use each number only once.

1. Which numbers make the inequality true?

$$\underline{\hspace{2cm}} < \underline{3.16} < \underline{\hspace{2cm}}$$

2. Which numbers make the inequality true?

$$\underline{\hspace{2cm}} < \underline{3.1006} < \underline{\hspace{2cm}}$$

3. Which numbers make the inequality true?

$$\underline{\hspace{2cm}} < \underline{0.3016} < \underline{\hspace{2cm}}$$

4. Which numbers make the inequality true?

$$\underline{\hspace{2cm}} < \underline{3.061} < \underline{\hspace{2cm}}$$



Look at the product of the multiplication problems below. For each product, write the decimal point in the correct place.

$$\begin{array}{r} 15.301 \\ \times 6.49 \\ \hline 137709 \\ 612040 \\ +9180600 \\ \hline 9930349 \end{array}$$

$$\begin{array}{r} 624.31 \\ \times 82.5 \\ \hline 312155 \\ 1248620 \\ +49944800 \\ \hline 51505575 \end{array}$$

$$\begin{array}{r} 49.76 \\ \times 1.69 \\ \hline 44784 \\ 298560 \\ +497600 \\ \hline 840944 \end{array}$$

$$\begin{array}{r} 3187.49 \\ \times .272 \\ \hline 637498 \\ 22312430 \\ +63749800 \\ \hline 86699728 \end{array}$$

Look at the multiplication problem below. Circle the correct answer.

$$\begin{array}{r} 23.15 \\ \times 6.5 \\ \hline \end{array}$$

a) 1,504.75

b) 25.465

c) 150.475

d) 23.80

Look at the multiplication problem below. Circle the correct answer.

$$\begin{array}{r} 109.96 \\ \times 2.04 \\ \hline \end{array}$$

a) 192.00

b) 224.3184

c) 21.3976

d) 2,2431.84

Look at the multiplication problem below. Circle the correct answer.

$$\begin{array}{r} 5498.2 \\ \times 36.85 \\ \hline \end{array}$$

a) 202,608.67

b) 1,209.602

c) 5,535.05

d) 553.505



Solve the multiplication problems below. Show your work.

28.5×6.4

57.16×0.631

1837.41×178.4

$\begin{array}{r} 28.5 \\ \times 6.4 \\ \hline 1140 \\ + 17100 \\ \hline 182.40 \end{array}$	$\begin{array}{r} 57.16 \\ \times 0.631 \\ \hline 5716 \\ 171480 \\ + 3429600 \\ \hline 36.06796 \end{array}$	$\begin{array}{r} 1837.41 \\ \times 178.4 \\ \hline 734964 \\ 14699280 \\ 128618700 \\ + 183741000 \\ \hline 327,793.944 \end{array}$
--	---	---

Israel calculated an answer for the multiplication problem below. Look at his work and explain what he did wrong.

$\begin{array}{r} 278.5 \\ \times 13.6 \\ \hline 16710 \\ 83550 \\ + 278500 \\ \hline 37,876.0 \end{array}$

Sample Answer: He did not count the number of decimal places in the factors. Instead, he brought down the decimal, as one would do when adding decimal numbers.



Solve the following word problems.

Helen invited 30 people to her birthday party. She bought 35 party favors for the party. Each party favor cost \$0.63. How much did she pay for all the favors?

Sample Answer:

$$\begin{array}{r}
 35 \\
 \times 0.63 \\
 \hline
 105 \\
 + 2100 \\
 \hline
 \$22.05
 \end{array}$$

Bob's car has a fuel economy of 28 miles per gallon. He plans to travel 106 miles. Before Bob begins his journey, he realizes he only has 4.25 gallons of gas in his fuel tank. He puts 7.5 more gallons of gas in his car. How far can he travel after he puts the additional 7.5 gallons of gas in his car?

Sample Answer:

$$\begin{array}{r}
 \text{Gas} = 4.25 \text{ gallons} + 7.5 \text{ gallons} = 11.75 \text{ gallons} \\
 \begin{array}{r}
 11.751 \text{ gallons} \\
 \times \quad 28 \text{ miles per gallon} \\
 \hline
 9400 \\
 + 23500 \\
 \hline
 329.00 \text{ miles}
 \end{array}
 \end{array}$$

Arthur wants to figure out the area of a wall he wants to paint. He knows the length of the room is 30.75 feet, the width of the room is also 30.75 feet, and the height is 9.25 feet. What is the area of the wall he wants to paint?

Sample Answer:

$$\begin{array}{r}
 30.75 \text{ feet} \\
 \times 9.25 \text{ feet} \\
 \hline
 15375 \\
 61500 \\
 + 2767500 \\
 \hline
 284.4375 \text{ square feet}
 \end{array}$$



Look at the product of the multiplication problems below. For each product, write the decimal point in the correct place.

$$\begin{array}{r} 15.301 \\ \times 6.49 \\ \hline 137709 \\ 612040 \\ +9180600 \\ \hline 9930349 \end{array}$$

$$\begin{array}{r} 624.31 \\ \times 82.5 \\ \hline 312155 \\ 1248620 \\ +49944800 \\ \hline 51505575 \end{array}$$

$$\begin{array}{r} 49.76 \\ \times 1.69 \\ \hline 44784 \\ 298560 \\ +497600 \\ \hline 840944 \end{array}$$

$$\begin{array}{r} 3187.49 \\ \times .272 \\ \hline 637498 \\ 22312430 \\ +63749800 \\ \hline 86699728 \end{array}$$

Look at the multiplication problem below. Circle the correct answer.

$$\begin{array}{r} 23.15 \\ \times 6.5 \\ \hline \end{array}$$

- a) 1,504.75 b) 25.465 c) 150.475 d) 23.80

Look at the multiplication problem below. Circle the correct answer.

$$\begin{array}{r} 109.96 \\ \times 2.04 \\ \hline \end{array}$$

- a) 192.00 b) 224.3184 c) 21.3976 d) 2,2431.84

Look at the multiplication problem below. Circle the correct answer.

$$\begin{array}{r} 5498.2 \\ \times 36.85 \\ \hline \end{array}$$

- a) 202,608.67 b) 1,209.602 c) 5,535.05 d) 553.505



Solve the multiplication problems below. Show your work.

28.5×6.4

57.16×0.631

1837.41×178.4

Israel calculated an answer for the multiplication problem below. Look at his work and explain what he did wrong.

$ \begin{array}{r} 278.5 \\ \times 13.6 \\ \hline 16710 \\ 83550 \\ + 278500 \\ \hline 37,876.0 \end{array} $
--



Solve the following word problems.

Helen invited 30 people to her birthday party. She bought 35 party favors for the party. Each party favor cost \$0.63. How much did she pay for all the favors?

Bob's car has a fuel economy of 28 miles per gallon. He plans to travel 106 miles. Before Bob begins his journey, he realizes he only has 4.25 gallons of gas in his fuel tank. He puts 7.5 more gallons of gas in his car. How far can he travel after he puts the additional 7.5 gallons of gas in his car?

Arthur wants to figure out the area of a wall he wants to paint. He knows the length of the room is 30.75 feet, the width of the room is also 30.75 feet, and the height is 9.25 feet. What is the area of the wall he wants to paint?



Explain what you have to do before you can divide any number by a decimal.

You must change the divisor to a whole number. To do this, multiply it by a power of 10 by moving the decimal point to the right. Then multiply the dividend by the same power of 10.

In these division problems, draw arrows to show how you would move the decimal points. Then place a decimal point in the correct position in each quotient.

$$0.3 \overline{) 1.02}$$

$$0.10 \overline{) 2.00}$$

What is the rule about where to place the decimal point in a quotient?

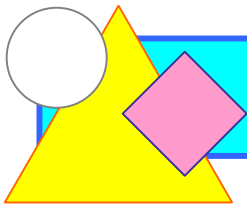
Place it straight up above the decimal point in the dividend.

Divide. Remember to move the decimal point if needed. Show your work.

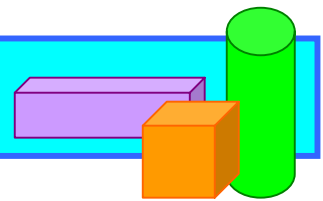
$$\begin{array}{r} 1.56 \\ 42 \overline{) 65.52} \\ \underline{42} \\ 235 \\ \underline{210} \\ 252 \\ \underline{252} \\ 0 \end{array}$$

$$\begin{array}{r} 5.4 \\ 1.1 \overline{) 5.94} \\ \underline{55} \\ 44 \\ \underline{44} \\ 0 \end{array}$$

$$\begin{array}{r} 0.25 \\ 0.7 \overline{) 0.175} \\ \underline{14} \\ 35 \\ \underline{35} \\ 0 \end{array}$$



Divide Decimal Numbers



Kyou and Kim bought 3,520 ounces of fruit punch for a neighborhood party. How many 5.5-ounce cups will that make? Show your work.

$$\begin{array}{r}
 \text{640 cups} \\
 5.5 \overline{) 3,520.0} \\
 \underline{330} \\
 220 \\
 \underline{220} \\
 00 \\
 \underline{00} \\
 0
 \end{array}$$

Kim and Kyou searched for a good price for mixed nuts for the party. They found sales at two stores. Shop-a-Lot was selling 12.7 lb of mixed nuts for \$80.01. Mercury Mart was selling 9.5 lb for \$60.80. Which store's nuts were less expensive per pound? Show your work.

$$\begin{array}{r}
 \$ 6.30 \text{ per pound} \\
 12.7 \overline{) \$80.01} \\
 \underline{762} \\
 381 \\
 \underline{381} \\
 0
 \end{array}$$

$$\begin{array}{r}
 \$ 6.40 \text{ per pound} \\
 9.5 \overline{) \$60.80} \\
 \underline{570} \\
 380 \\
 \underline{380} \\
 0
 \end{array}$$

Conclusion: Shop-a-Lot's nuts were \$6.30 per pound, and Mercury Mart's nuts were \$6.40 per pound. Shop-a-Lot's nuts cost \$.10 less per pound.



Explain what you have to do before you can divide any number by a decimal.

In these division problems, draw arrows to show how you would move the decimal points. Then place a decimal point in the correct position in each quotient.

$$0.3 \overline{) 1.02}$$

$$0.10 \overline{) 2.00}$$

What is the rule about where to place the decimal point in a quotient?

Divide. Remember to move the decimal point if needed. Show your work.

$$42 \overline{) 65.52}$$

$$1.1 \overline{) 5.94}$$

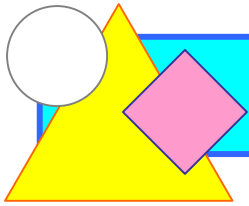
$$0.7 \overline{) 0.175}$$



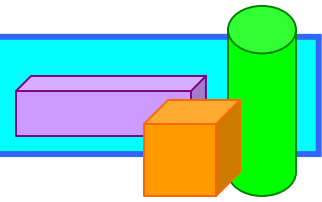
Kyou and Kim bought 3,520 ounces of fruit punch for a neighborhood party. How many 5.5-ounce cups will that make? Show your work.

Kim and Kyou searched for a good price for mixed nuts for the party. They found sales at two stores. Shop-a-Lot was selling 12.7 lb of mixed nuts for \$80.01. Mercury Mart was selling 9.5 lb for \$60.80. Which store's nuts were less expensive per pound? Show your work.

Conclusion:



Estimate by Rounding



Think about estimating numbers by rounding and fill in the blanks.

When rounding numbers, remember to look at the digit to the right of the rounding place.

If the digit is < 5 , round down . If the digit is ≥ 5 , round up .

Circle the greatest place in each of the following numbers:

0(2)41

(1),019.71

(1)1.492

(1).92

0(0)59

For each description on the left, fill in the letter of the corresponding method of estimation from the box on the right.

1. This method is the easiest to use with mental math. Use it when estimating sums, differences, and products.

Method b

2. When estimating quotients, use this method.

Method c

3. This method is the most accurate. It can be used when estimating sums, differences, and products.

Method a

Methods

- Round to the greatest place of the smallest number.
- Round to the greatest place of each number.
- Use compatible numbers.



Circle the greatest place value in the smallest number in each problem below. Then solve the problems by rounding to the greatest place of the smallest number. Show your work.

$$\begin{array}{r} 855.44 \\ + 0.858 \\ \hline 856.3 \end{array}$$

$$\begin{array}{r} 291.67 \\ - 7.552 \\ \hline 284.0 \end{array}$$

$$\begin{array}{r} 120.75 \\ \times 0.462 \\ \hline 60.4 \end{array}$$

$$\begin{array}{r} 855.4 \\ + 0.9 \\ \hline 856.3 \end{array}$$

$$\begin{array}{r} 292.0 \\ - 8.0 \\ \hline 284.0 \end{array}$$

$$\begin{array}{r} 120.8 \\ \times 0.5 \\ \hline 60.4 \end{array}$$

Find the quotients in the problems below by using the compatible numbers method of estimation. This method chooses numbers that are close to the original divisor and the original dividend that are easy to calculate using mental math. Show your work by writing and solving each problem using compatible numbers, then write your answer in the original problem.

$$\begin{array}{r} 50 \\ 0.84 \overline{) 46} \\ \hline 45 \\ \underline{45} \\ 0 \end{array}$$

9 and 45 are close to the original divisor and dividend.

$$\begin{array}{r} 100 \\ 0.46 \overline{) 49} \\ \hline 50 \\ \underline{50} \\ 0 \end{array}$$

5 and 50 are close to the original divisor and dividend.

$$\begin{array}{r} 30 \\ 0.38 \overline{) 13} \\ \hline 12 \\ \underline{12} \\ 0 \end{array}$$

4 and 12 are close to the original divisor and dividend.

Solve the problems below by rounding each number to its greatest place. Show your work by writing and solving each problem with rounded numbers, then write your answer in the original problem.

Round to the hundreds place → 620.17

$$\begin{array}{r} \times 0.872 \\ 540.0 \\ \hline 600.0 \\ \times 0.9 \\ \hline 540.0 \end{array}$$

Round to the tenths place

Round to the hundreds place → 461.25

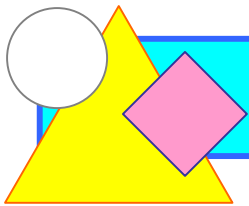
$$\begin{array}{r} + 0.569 \\ 500.6 \\ \hline 500.0 \\ + 0.6 \\ \hline 500.6 \end{array}$$

Round to the tenths place

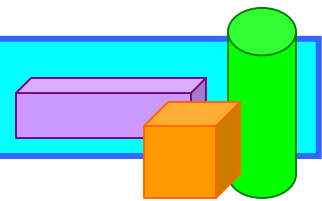
Round to the hundreds place → 298.10

$$\begin{array}{r} - 4.858 \\ 856.3 \\ \hline 300.0 \\ - 5.0 \\ \hline 295.0 \end{array}$$

Round to the ones place



Estimate by Rounding



Record rainfall has been reported for several months in Eastfield County. Rainfall amounts were 5.36 inches in March, and 0.798 inches in April. Estimate the amount of rainfall for the two months by rounding to the greatest place of the smallest number. Show your work.

$$\begin{array}{r} 5.36 \\ + 0.798 \\ \hline \end{array}$$

The greatest place of smallest number is the tenths place

$$\begin{array}{r} 5.4 \leftarrow \\ + 0.8 \leftarrow \\ \hline 6.2 \end{array}$$

Round both numbers to the tenths place.

There was approximately 6.2 inches of rain in two months in Eastfield County.

A field biologist monitored a population of desert tortoises in a wildlife preserve. She counted 294 tortoises. Based on their sizes, the biologist determined that 19% of the tortoises were less than 2 years old. Estimate how many tortoises were less than 2 years old by rounding to the greatest place of both numbers. Remember to change the percentage to a decimal. Show your work.

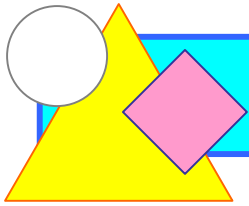
First, change the percentage to a decimal: $19\% = 0.19$

$$\begin{array}{r} 294 \\ \times 0.19 \\ \hline \end{array}$$

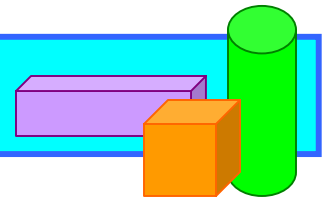
Round to the greatest place of both numbers.

$$\begin{array}{r} 300 \\ \times 0.2 \\ \hline 60.0 \end{array}$$

Approximately 60 tortoises from a population of 294 were less than 2 years old.



Estimate by Rounding



Think about estimating numbers by rounding and fill in the blanks.

When rounding numbers, remember to look at the digit to the _____ of the rounding place.

If the digit is < 5 , round _____. If the digit is ≥ 5 , round _____.

Circle the greatest place in each of the following numbers:

0.241

1,019.71

11.492

1.92

0.059

For each description on the left, fill in the letter of the corresponding method of estimation from the box on the right.

1. This method is the easiest to use with mental math. Use it when estimating sums, differences, and products.

Method _____

2. When estimating quotients, use this method.

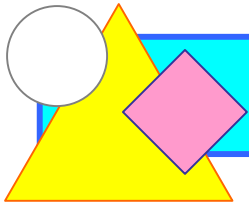
Method _____

3. This method is the most accurate. It can be used when estimating sums, differences, and products.

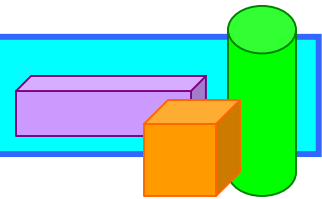
Method _____

Methods

- Round to the greatest place of the smallest number.
- Round to the greatest place of each number.
- Use compatible numbers.



Estimate by Rounding



Circle the greatest place value in the smallest number in each problem below. Then solve the problems by rounding to the greatest place of the smallest number. Show your work.

$$\begin{array}{r} 855.44 \\ + 0.858 \\ \hline \end{array}$$

$$\begin{array}{r} 291.67 \\ - 7.552 \\ \hline \end{array}$$

$$\begin{array}{r} 120.75 \\ \times 0.462 \\ \hline \end{array}$$

Find the quotients in the problems below by using the compatible numbers method of estimation. This method chooses numbers that are close to the original divisor and the original dividend that are easy to calculate using mental math. Show your work by writing and solving each problem using compatible numbers, then write your answer in the original problem.

$$0.84 \overline{) 46}$$

$$0.46 \overline{) 49}$$

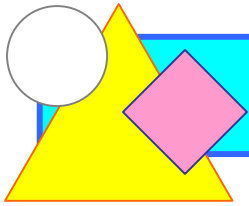
$$0.38 \overline{) 13}$$

Solve the problems below by rounding each number to its greatest place. Show your work by writing and solving each problem with rounded numbers, then write your answer in the original problem.

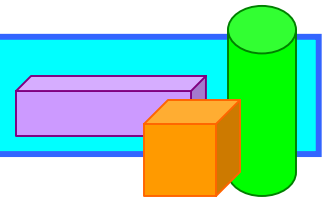
$$\begin{array}{r} 620.17 \\ \times 0.872 \\ \hline \end{array}$$

$$\begin{array}{r} 461.25 \\ + 0.569 \\ \hline \end{array}$$

$$\begin{array}{r} 298.10 \\ - 4.858 \\ \hline \end{array}$$



Estimate by Rounding

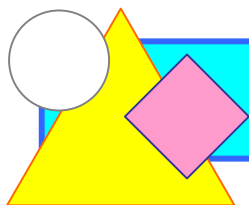


Record rainfall has been reported for several months in Eastfield County. Rainfall amounts were 5.36 inches in March, and 0.798 inches in April. Estimate the amount of rainfall for the two months by rounding to the greatest place of the smallest number. Show your work.

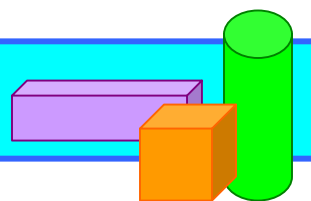
There was approximately _____ inches of rain in two months in Eastfield County.

A field biologist monitored a population of desert tortoises in a wildlife preserve. She counted 294 tortoises. Based on their sizes, the biologist determined that 19% of the tortoises were less than 2 years old. Estimate how many tortoises were less than 2 years old by rounding to the greatest place of both numbers. Remember to change the percentage to a decimal. Show your work.

Approximately _____ tortoises from a population of 294 were less than 2 years old.



Decimals and Fractions



Fill in the blanks.

To add rational numbers with different signs, follow two steps.

1. Subtract the absolute values of the addends.
2. Give the sum the same sign as the addend with the greater absolute value.

To subtract a rational number, add its opposite.

Solve the following.

$$|^{-}33| = \underline{33} \quad |0.1| = \underline{0.1} \quad |^{-}149| = \underline{149} \quad |^{-}5.1| = \underline{5.1} \quad |18| = \underline{18}$$

Fill in the answers.

$$2.8 - 3.4 = \underline{-1.6}$$

$$^{-}0.9 + 0.5 = \underline{-0.4}$$

$$8.0 - 1.7 = \underline{6.3}$$

$$0.2 + ^{-}0.6 = \underline{-0.4}$$

$$6.4 + 1.4 = \underline{7.8}$$

$$^{-}0.6 - ^{-}0.7 = \underline{0.1}$$

$$^{-}2.2 + ^{-}0.6 = \underline{-2.8}$$

$$2 - 2.1 = \underline{-0.1}$$

$$^{-}0.2 - ^{-}0.2 = \underline{0}$$

$$3.5 + 1.2 = \underline{4.7}$$

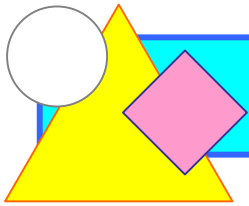
$$^{-}0.7 + ^{-}0.1 = \underline{-0.8}$$

$$^{-}0.8 + 0.2 = \underline{-0.6}$$

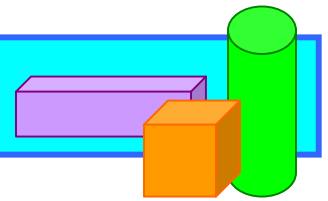
$$1.1 - ^{-}1.1 = \underline{2.2}$$

$$^{-}1.8 - 7.2 = \underline{-9}$$

$$^{-}9.8 + 8.9 = \underline{-0.9}$$



Decimals and Fractions



Solve the problems by finding the LCD. Show the steps necessary to arrive at each answer.

$$\begin{array}{r} \frac{-5}{9} = \frac{-5}{9} \\ + \frac{1}{3} = \frac{3}{9} \\ \hline \frac{-2}{9} \end{array}$$

$$\begin{array}{r} \frac{7}{9} = \frac{35}{45} \\ + \frac{-1}{15} = \frac{-3}{45} \\ \hline \frac{32}{45} \end{array}$$

$$\begin{array}{r} \frac{-5}{12} = \frac{-5}{12} \\ + \frac{1}{3} = \frac{4}{12} \\ \hline \frac{-1}{12} \end{array}$$

$$\begin{array}{r} \frac{-3}{5} = \frac{-6}{10} \\ + \frac{-3}{10} = \frac{-3}{10} \\ \hline \frac{-9}{10} \end{array}$$

$$\begin{array}{r} \frac{-23}{36} = \frac{-23}{36} \\ + \frac{-2}{9} = \frac{-8}{36} \\ \hline \frac{-31}{36} \end{array}$$

$$\begin{array}{r} \frac{25}{32} = \frac{25}{32} \\ + \frac{-3}{8} = \frac{-12}{32} \\ \hline \frac{13}{32} \end{array}$$

Circle the equivalent addition expression. Then solve. Show your work.

$$\begin{array}{r} \frac{-3}{4} \\ - \frac{-2}{5} \\ \hline \frac{-7}{20} \end{array}$$

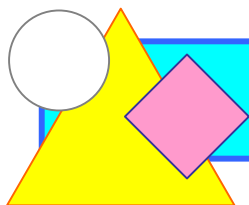
$\frac{3}{4} + \frac{-2}{5}$
$\frac{-3}{4} + \frac{-2}{5}$
$\frac{-3}{4} + \frac{2}{5}$

$$\begin{array}{r} \frac{-3}{4} = \frac{-15}{20} \\ + \frac{2}{5} = \frac{8}{20} \\ \hline \frac{-7}{20} \end{array}$$

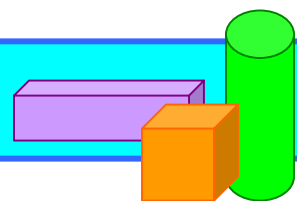
$$\begin{array}{r} \frac{13}{18} \\ - \frac{-1}{3} \\ \hline 1 \frac{1}{18} \end{array}$$

$\frac{13}{18} + \frac{-1}{3}$
$\frac{13}{18} + \frac{1}{3}$
$\frac{-13}{18} + \frac{-1}{3}$

$$\begin{array}{r} \frac{13}{18} = \frac{13}{18} \\ + \frac{1}{3} = \frac{6}{18} \\ \hline \frac{19}{18} = 1 \frac{1}{18} \end{array}$$



Decimals and Fractions



Fill in the blanks.

To add rational numbers with different signs, follow two steps.

1. _____ the absolute values of the addends.
2. Give the sum the same sign as the addend with the greater _____.

To subtract a rational number, add its _____.

Solve the following.

$$|^{-}33| = \underline{\quad} \quad |0.1| = \underline{\quad} \quad |^{-}149| = \underline{\quad} \quad |^{-}5.1| = \underline{\quad} \quad |18| = \underline{\quad}$$

Fill in the answers.

$2.8 - 3.4 = \underline{\quad}$

$^{-}0.9 + 0.5 = \underline{\quad}$

$8.0 - 1.7 = \underline{\quad}$

$0.2 + ^{-}0.6 = \underline{\quad}$

$6.4 + 1.4 = \underline{\quad}$

$^{-}0.6 - ^{-}0.7 = \underline{\quad}$

$^{-}2.2 + ^{-}0.6 = \underline{\quad}$

$2 - 2.1 = \underline{\quad}$

$^{-}0.2 - ^{-}0.2 = \underline{\quad}$

$3.5 + 1.2 = \underline{\quad}$

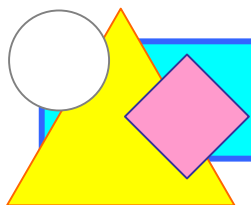
$^{-}0.7 + ^{-}0.1 = \underline{\quad}$

$^{-}0.8 + 0.2 = \underline{\quad}$

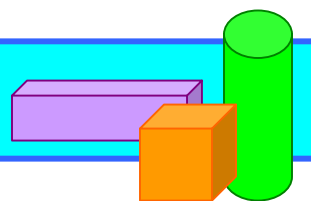
$1.1 - ^{-}1.1 = \underline{\quad}$

$^{-}1.8 - 7.2 = \underline{\quad}$

$^{-}9.8 + 8.9 = \underline{\quad}$



Decimals and Fractions



Solve the problems by finding the LCD. Show the steps necessary to arrive at each answer.

$$\begin{array}{r} \frac{-5}{9} = \frac{-5}{9} \\ + \frac{1}{3} = \frac{3}{9} \\ \hline \frac{-2}{9} \end{array}$$

$$\begin{array}{r} \frac{7}{9} \\ + \frac{-1}{15} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{-5}{12} \\ + \frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{-3}{5} \\ + \frac{-3}{10} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{-23}{36} \\ + \frac{-2}{9} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{25}{32} \\ + \frac{-3}{8} \\ \hline \end{array}$$

Circle the equivalent addition expression. Then solve. Show your work.

$$\begin{array}{r} \frac{-3}{4} \\ - \frac{-2}{5} \\ \hline \end{array}$$

$\frac{3}{4} + \frac{-2}{5}$
$\frac{-3}{4} + \frac{-2}{5}$
$\frac{-3}{4} + \frac{2}{5}$

$$\begin{array}{r} \frac{13}{18} \\ - \frac{-1}{3} \\ \hline \end{array}$$

$\frac{13}{18} + \frac{-1}{3}$
$\frac{13}{18} + \frac{1}{3}$
$\frac{-13}{18} + \frac{-1}{3}$



Circle the correct answer.

What is the decimal equivalent of $\frac{1}{8}$? 0.125 0.152 0.18

What percentage does $\frac{1}{8}$ equal? 1.25% 12.5% 1.8%

What is the decimal equivalent of 101%? 0.101 1.01 0.01

What is the decimal equivalent of 9.41%? 0.94 0.941 0.0941

What percentage does $\frac{18}{25}$ equal? 18.1% 25% 72%

Fill in the empty spaces in the chart below.

Percent	Decimal	Fraction
36%	0.36	$\frac{9}{25}$
130%	1.3	$1\frac{3}{10}$
39%	0.39	$\frac{39}{100}$
7%	0.07	$\frac{7}{100}$
825%	8.25	$8\frac{1}{4}$
26%	0.26	$\frac{13}{50}$



In each problem below, first express the percentage as a fraction. Then solve, following the steps for dividing a mixed number by a whole number. Show your work.

$$83\frac{1}{3}\% = \frac{83\frac{1}{3}}{100} = \frac{5}{6}$$

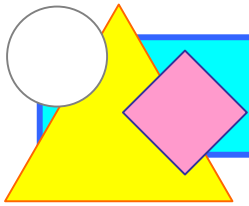
$$83\frac{1}{3} \div 100 = \frac{250}{3} \div \frac{100}{1} = \frac{250}{3} \times \frac{1}{100} = \frac{5}{6}$$

$$9\frac{1}{11}\% = \frac{9\frac{1}{11}}{100} = \frac{1}{11}$$

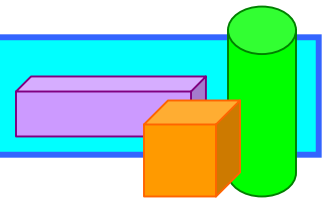
$$9\frac{1}{11} \div 100 = \frac{100}{11} \div \frac{100}{1} = \frac{100}{11} \times \frac{1}{100} = \frac{1}{11}$$

$$22\frac{2}{9}\% = \frac{22\frac{2}{9}}{100} = \frac{2}{9}$$

$$22\frac{2}{9} \div 100 = \frac{200}{9} \div \frac{100}{1} = \frac{200}{9} \times \frac{1}{100} = \frac{2}{9}$$



Percents/Fractions/Decimals



Circle the correct answer.

What is the decimal equivalent of $\frac{1}{8}$?

<u>0.125</u>	0.152	0.18
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What percentage does $\frac{1}{8}$ equal?

1.25%	12.5%	1.8%
-------	-------	------

What is the decimal equivalent of 101%?

0.101	1.01	0.01
-------	------	------

What is the decimal equivalent of 9.41%?

0.94	0.941	0.0941
------	-------	--------

What percentage does $\frac{18}{25}$ equal?

18.1%	25%	72%
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Fill in the empty spaces in the chart below.

Percent	Decimal	Fraction
36%	0.36	$\frac{9}{25}$
	1.3	$1\frac{3}{10}$
		$\frac{39}{100}$
	0.07	$\frac{7}{100}$
825%		$8\frac{1}{4}$
		$\frac{13}{50}$



In each problem below, first express the percentage as a fraction. Then solve, following the steps for dividing a mixed number by a whole number. Show your work.

$$83\frac{1}{3}\% = \frac{83\frac{1}{3}}{100} = \frac{5}{6}$$

$$83\frac{1}{3} \div 100 = \frac{250}{3} \div \frac{100}{1} = \frac{250}{3} \times \frac{1}{100} = \frac{5}{6}$$

$$9\frac{1}{11}\% =$$

$$22\frac{2}{9}\% =$$