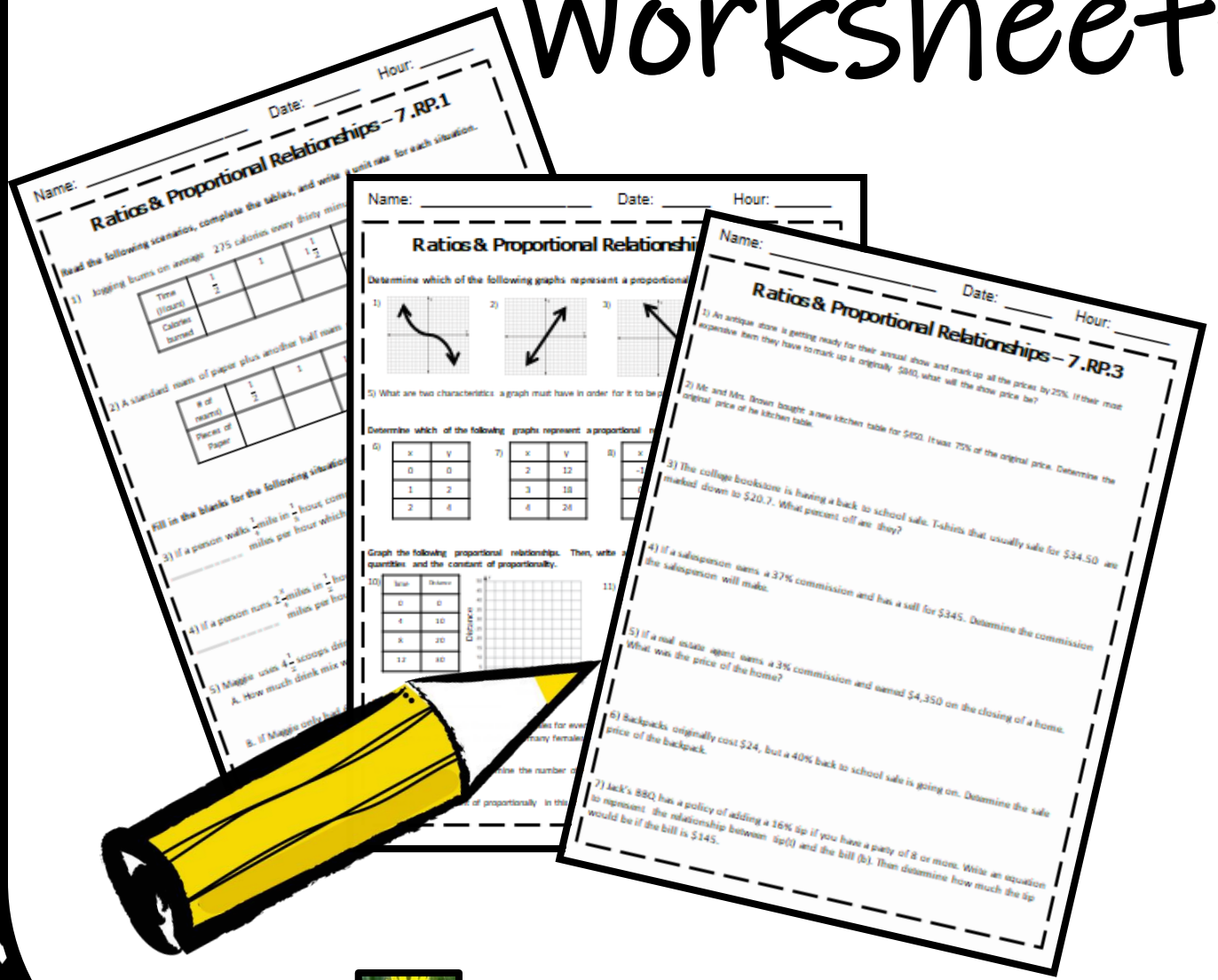
Grade 7

Ratios & Proportional Relationships Worksheets



By: Math in the Midwest

Name: _____ Date: _____ Hour: _____

Ratios & Proportional Relationships – 7.RP.1

Read the following scenarios, complete the tables, and write a unit rate for each situation.

1) Jogging burns on average 275 calories every thirty minutes.

Time (Hours)	$\frac{1}{2}$	1	$1\frac{1}{2}$	2
Calories burned				

2) A standard ream of paper plus another half ream of paper contains 750 sheets of paper.

# of reams)	$\frac{1}{2}$	1	$1\frac{1}{2}$	2
Pieces of Paper				

Fill in the blanks for the following situations:

3) If a person walks $\frac{1}{4}$mile in $\frac{1}{5}$ hour, compute the unit rate as a complex fraction, _____ miles per hour which is equivalent to _____ miles per hour.

4) If a person runs $2\frac{3}{4}$miles in $\frac{1}{2}$ hour, compute the unit rate as a complex fraction, _____ miles per hour which is equivalent to _____ miles per hour.

5) Maggie uses $4\frac{1}{2}$ scoops drink mix to make 15 cups of drinks.

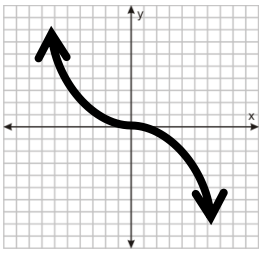
A. How much drink mix would she need to use to make 1 cup of drinks?

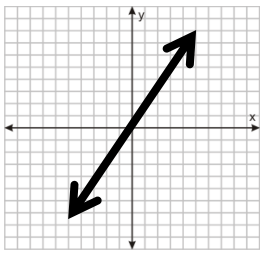
B. If Maggie only had $6\frac{1}{2}$ scoops drink mix left. How many cups of drinks can she make?

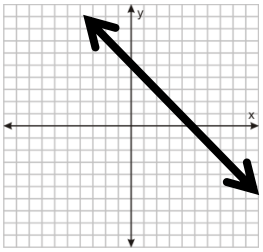
Name: _____ Date: _____ Hour: _____

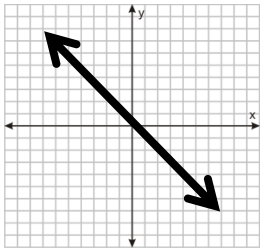
Ratios & Proportional Relationships – 7.RP.2

Determine which of the following graphs represent a proportional relationship:

1) 

2) 

3) 

4) 

5) What are two characteristics a graph must have in order for it to be proportional?

Determine which of the following tables represent a proportional relationship:

6)

x	y
0	0
1	2
2	4

7)

x	y
2	12
3	18
4	24

8)

x	y
-1	0
0	0
5	0

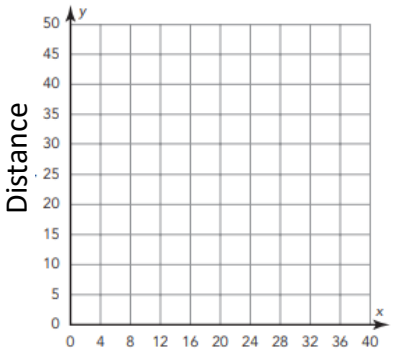
9)

x	y
1	5
2	12
3	15

Graph the following proportional relationships. Then, write a proportion that shows the relationship between quantities and the constant of proportionality.

10)

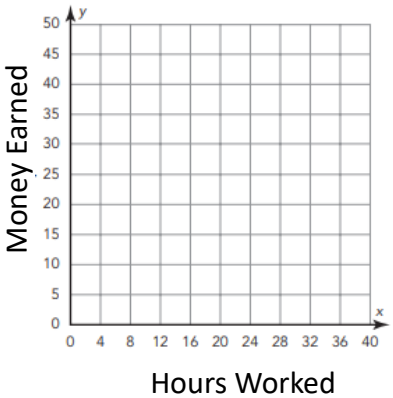
Time	Distance
0	0
4	10
8	20
12	30



Proportion: _____

11)

Hours Worked	Money Earned
0	0
2	16
4	32
8	64



Proportion: _____

12) In the 7th grade choir there are 4 females for every 3 males.

A. If there are 21 males in choir how many females are there?

B. Write an equation to determine the number of females enrolled if you know the number of males enrolled.

C. What is the constant of proportionally in this situation?

Name: _____ Date: _____ Hour: _____

Ratios & Proportional Relationships – 7.RP.3

1) An antique store is getting ready for their annual show and mark up all the prices by 25%. If their most expensive item they have to mark up is originally $840, what will the show price be?

2) Mr. and Mrs. Brown bought a new kitchen table for $450. It was 75% of the original price. Determine the original price of he kitchen table.

3) The college bookstore is having a back to school sale. T-shirts that usually sale for $34.50 are marked down to $20.7. What percent off are they?

4) If a salesperson earns a 37% commission and has a sell for $345. Determine the commission the salesperson will make.

5) If a real estate agent earns a 3% commission and earned $4,350 on the closing of a home. What was the price of the home?

6) Backpacks originally cost $24, but a 40% back to school sale is going on. Determine the sale price of the backpack.

7) Jack's BBQ has a policy of adding a 16% tip if you have a party of 8 or more. Write an equation to represent the relationship between tip(t) and the bill (b). Then determine how much the tip would be if the bill is $145.

Name: _____ Date: _____ Hour: _____

Ratios & Proportional Relationships – 7.RP.1

Read the following scenarios, complete the tables, and write a unit rate for each situation.

1) Jogging burns on average 275 calories every thirty minutes.

Time (Hours)	$\frac{1}{2}$	1	$1\frac{1}{2}$	2
Calories burned	275	550	825	1,100

2) A standard ream of paper plus another half ream of paper contains 750 sheets of paper.

# of reams)	$\frac{1}{2}$	1	$1\frac{1}{2}$	2
Pieces of Paper	250	500	750	1000

Fill in the blanks for the following situations:

3) If a person walks $\frac{1}{4}$ mile in $\frac{1}{5}$ hour, compute the unit rate as a complex fraction, $\frac{\frac{1}{4}}{\frac{1}{5}}$ miles per hour which is equivalent to 1.25 miles per hour.

4) If a person runs $2\frac{3}{4}$ miles in $\frac{1}{2}$ hour, compute the unit rate as a complex fraction, $\frac{2\frac{3}{4}}{\frac{1}{2}}$ miles per hour which is equivalent to 5.5 miles per hour.

5) Maggie uses $4\frac{1}{2}$ scoops drink mix to make 15 cups of drinks.

A. How much drink mix would she need to use to make 1 cup of drinks?

$0.3\ scoops$

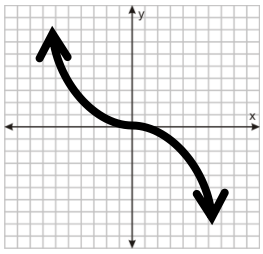
B. If Maggie only had $6\frac{1}{2}$ scoops drink mix left. How many cups of drinks can she make?

$21\ drinks$

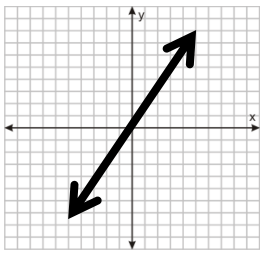
Name: _____ Date: _____ Hour: _____

Ratios & Proportional Relationships – 7.RP.2

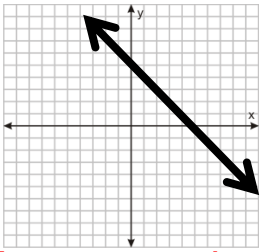
Determine which of the following graphs represent a proportional relationship:

1) 

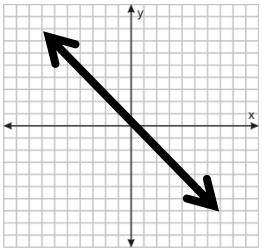
Not proportional

2) 

Proportional

3) 

Not proportional

4) 

Proportional

5) What are two characteristics a graph must have in order for it to be proportional?

Straight line and go through the origin

Determine which of the following tables represent a proportional relationship:

6)

x	y
0	0
1	2
2	4

Proportional

7)

x	y
2	12
3	18
4	24

Proportional

8)

x	y
-1	0
0	0
5	0

Not proportional

9)

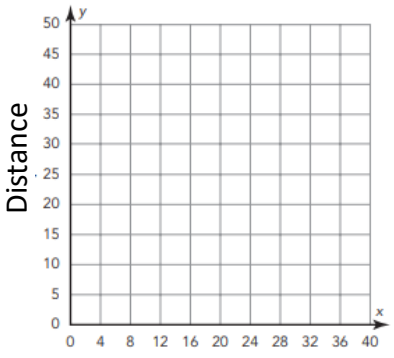
x	y
1	5
2	12
3	15

Not proportional

Graph the following proportional relationships. Then, write a proportion that shows the relationship between quantities and the constant of proportionality.

10)

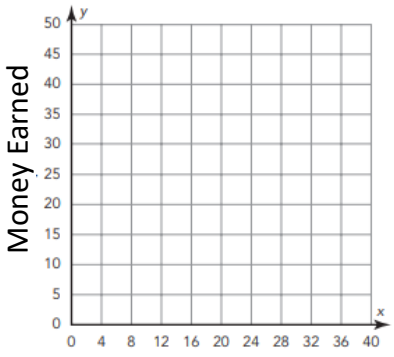
Time	Distance
0	0
4	10
8	20
12	30



Proportion: $\frac{d}{t} = \frac{5}{2}$

11)

Hours Worked	Money Earned
0	0
2	16
4	32
8	64



Proportion: $\frac{m}{h} = \frac{8}{1}$

12) In the 7th grade choir there are 4 females for every 3 males.

A. If there are 21 males in choir how many females are there?

$28\ females$

B. Write an equation to determine the number of females enrolled if you know the number of males enrolled.

$f = \frac{4}{3}m$

C. What is the constant of proportionally in this situation? $\frac{4}{3}$

Name: _____ Date: _____ Hour: _____

Ratios & Proportional Relationships – 7.RP.3

1) An antique store is getting ready for their annual show and mark up all the prices by 25%. If their most expensive item they have to mark up is originally $840, what will the show price be?

$\$1{,}050$

2) Mr. and Mrs. Brown bought a new kitchen table for $450. It was 75% of the original price. Determine the original price of he kitchen table.

$\$1800$

3) The college bookstore is having a back to school sale. T-shirts that usually sale for $34.50 are marked down to $20.7. What percent off are they?

$40\%\ off$

4) If a salesperson earns a 37% commission and has a sell for $345. Determine the commission the salesperson will make.

$\$127.65$

5) If a real estate agent earns a 3% commission and earned $4,350 on the closing of a home. What was the price of the home?

$\$145{,}000$

6) Backpacks originally cost $24, but a 40% back to school sale is going on. Determine the sale price of the backpack.

$\$14.40$

7) Jack's BBQ has a policy of adding a 16% tip if you have a party of 8 or more. Write an equation to represent the relationship between tip(t) and the bill (b). Then determine how much the tip would be if the bill is $145.

$t = 0.16b$ $t = \$23.2$

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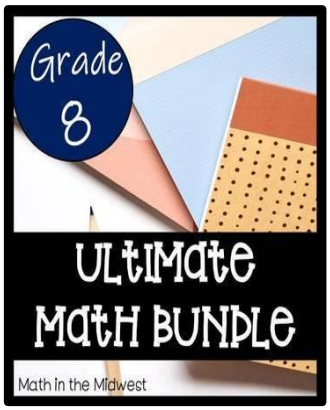

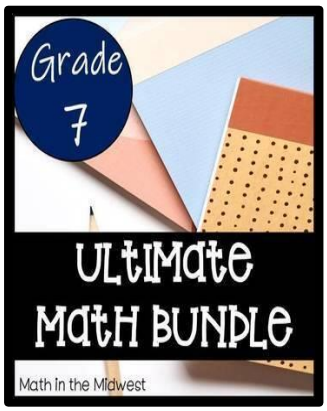

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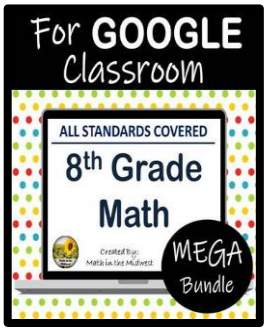
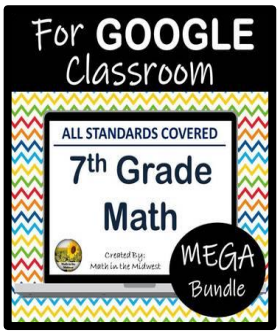
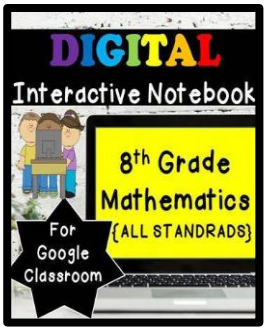
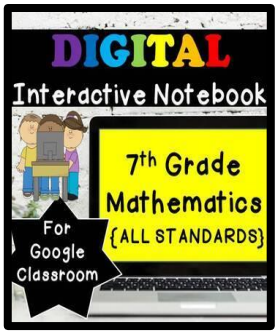
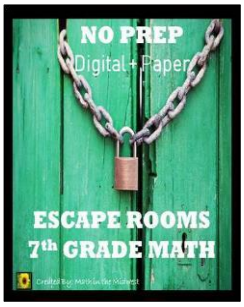


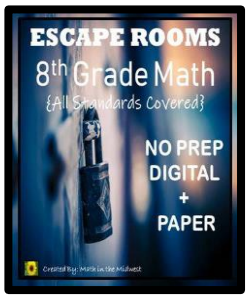


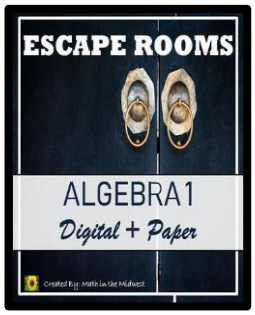


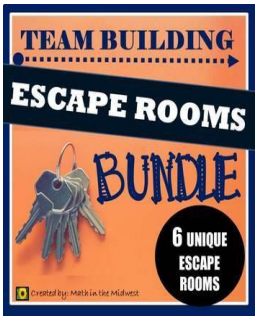


Escape Rooms:









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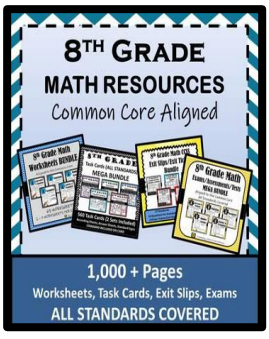

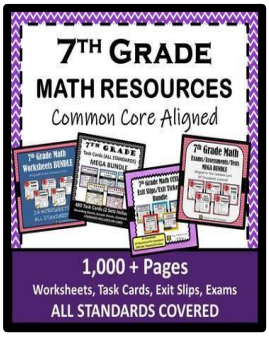

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