

MATH 7

Write your questions here!



Who has a better shot?

SULLY

KELLY

Ratio	Decimal	Percent
$\frac{2}{5}$		
	0.42	
	0.08	
	0.145	
		36 %
		4 %
		126 %

Fill in the table.

Ratio (Fraction)	Decimal	Percent
$\frac{1}{4}$		
		6 %
	0.3	

Rewrite 28.4% as a decimal.

PART TO A PART

Ratio of Pink to White

Ratio of White to Pink

PART TO A WHOLE

Ratio of Pink to Total Flowers

Ration of White to Total Flowers

Mr Brust's lunch has 6 cookies and 4 muffins

- What is the simplest ratio of cookies to muffins?
- What is the simplest ratio of muffins to total items?
- What percent of his lunch is cookies?
- If I have 36 cookies, how many muffins would I need to have the same ratio?

SUMMARY:



Fill in the tables below.

1.

Ratio (Fraction)	Decimal	Percent
$\frac{4}{5}$		
		8 %
	0.25	

2.

Ratio (Fraction)	Decimal	Percent
		74 %
$\frac{3}{8}$		
	0.04	

Rewrite the following.

3. Rewrite $\frac{7}{8}$ as a percent.

4. Rewrite $\frac{3}{12}$ as a decimal.

5. Rewrite 12.8% as a decimal.

6. Rewrite 0.05 as a percent.

7. Rewrite 0.17 as a fraction.

8. Rewrite 40% as a fraction.

Answer the following.

9. In Chloe's closet, there are 10 shirts and 15 shorts.

a. What is the simplest ratio of shirts to shorts?

b. What is the simplest ratio of shirts to total items?

c. What percent of the items in the closet are shirts?

d. Chris has 4 shirts and 5 shorts in his closet. Is the ratio of shirts to shorts in Chris's closet the same as the ratio of Chloe's closet? Explain.

Answer the following.

10. Scrooge McDuck has 8 quarters and 6 dimes in his pocket.

- a. What is the simplest ratio of quarters to dimes?
- b. What percent of Scrooge's coins are dimes?
- c. If Hewey has 30 dimes in his pocket, how many quarters would he need in order to keep the same ratio as Scrooge?

11. Generic High School has a new ski club this year. In the club are 4 girls and 16 boys.

- a. What is the simplest ratio of girls to boys in the ski club?
- b. What is the simplest ratio of girls to total members of the ski club?
- c. What percent of the ski club is male?
- d. The drama club has 12 girls and 48 boys. Is the ratio of girls to boys in the drama club the same as the ratio of girls to boys in the ski club?

12. It takes you 3 hours to read 72 pages in your novel.

- a. What is your ratio of pages read to hours?
- b. Speed Reader reads 36 pages in 2 hours, does she read faster or slower than you?
- c. How many pages per hour do you read?
- d. If you maintain the same rate, how many pages can you read in 9 hours?

1. Rewrite 8.1% as decimal.
 2. You got 45 out of 48 points on a Math test. What percent did you get right?
3. The following are recipes for competing brands of lemonade. Determine which lemonade is the most “Lemony”. Explain why!

Recipe Name: “Crusty Lemonade”

1 cup of concentrate
4 cups of water

Recipe Name: “GOATonade”

$\frac{3}{5}$ cup concentrate
1 cup water

Recipe Name: “Richest Citrus”

$\frac{1}{2}$ cup concentrate
2 cups water

Recipe Name: “Main Squeeze”

2 cups of concentrate
3 cups of water

EXIT TICKET –

Mr. Brust’s semester one Math 7 grades are as follows:

A’s = 8

B’s = 12

C’s = 6

D’s = 2

- a. What percent of Mr. Brust’s students got A’s for semester one?
- b. Mr Kelly has the exact same ratio of B’s to D’s. If Mr Kelly had 10 D’s for semester one, how many B’s did he have?

8.2 Proportional Equations

MATH 7

Write your questions here!



Mr. Brust aka LeBrust makes 80% of his free throws.

Shots Attempted	Shots Made
10	
20	
60	
	4
	24
	12

Proportionality Constant $k =$

EQUATION

How many shots would Mr. Brust make if he attempted 18 shots?

How many attempts would Mr. Brust need to make 40 shots?

Main Squeeze Lemonade is 2 cups concentrate and 3 cups water.

a. Write an equation to represent this.

b. How much concentrate should you use with 10 cups of water? Use your equation.

c. How much water should you use with 8 cups of concentrate? Use your equation.

Water (cups)	Concentrate (cups)
50	
10	
	15

Use the equation $y = 3x - 5$ answer the following.

a. Find y when $x = 6$

b. Find x when $y = -20$

x	y
0	
-3	
	13
	-15

c. Is the equation proportional?

SUMMARY:

Now, summarize your notes here!



8.2 Proportional Equations

PRACTICE

Use the situation to answer the questions and fill in the table.

1. Sully does 3 out of every 5 problems correctly.

a. Write an equation to represent this.

b. If Mr Sully takes a test with 50 problems, how many will he get correct? Use your equation.

c. If Mr Sully does a homework and gets 15 correct, how many problems were on the homework?

# of problems	# done correctly
50	
10	
	15
	12

2. 10% of people are left handed.

a. Write an equation to represent this.

b. If there are group of 80 people, how many are left handed? Use your equation.

c. If a group of people has 9 left handed people, how many are in the group? Use your equation.

People (#)	Left handed (#)
100	
18	
	15
	6

3. The recipe for “Crusty Lemonade” is 1 part concentrate for every 4 cups of water.

a. Write an equation to represent this.

b. How much water should you use with 8 cups of concentrate? Use your equation.

c. How much concentrate should you use with 12 cups of water? Use your equation.

Water (cups)	Concentrate (cups)
12	
6	
	8
	10

Use the equation to answer the questions and fill in the table.

4. Equation: $y = -2x + 4$

a. Find y when $x = 6$

b. Find x when $y = 6$

x	y
1	
3	
	22
	-10

c. Is the equation proportional? YES or NO

5. Equation: $y = 1.2x$

a. Find y when $x = 6$

b. Find x when $y = 6$

x	y
0	
-6	
	10
	-24

c. Is the equation proportional? YES or NO

6. Equation: $m = 6h + 4$

a. Find m when $h = 6$

b. Find h when $m = 6$

h	m
3	
-4	
	10
	16

c. Is the equation proportional? YES or NO

7. Equation: $d = \frac{3}{4}t$

a. Find t when $d = 6$

b. Find d when $t = 6$

t	d
0	
-8	
	9
	10

c. Is the equation proportional? YES or NO

8.2 Proportional Equations

WRAP UP

1. Given the equation $y = -4x + 7$

Find x if $y = 23$.

Is the equation proportional? YES or NO

2. Given the equation $y = 2x$

Fill in the table.

x	y
4	
-5	
	18
	-10

Is the equation proportional? YES or NO

3. The following are recipes for competing brands of lemonade.

Recipe Name: "Crusty Lemonade"

1 cup of concentrate
4 cups of water

Recipe Name: "GOATonade"

$\frac{3}{5}$ cup concentrate
1 cup water

Recipe Name: "Richest Citrus"

$\frac{1}{2}$ cup concentrate
2 cups water

Sully and Kelly want to know what percent of "Crusty Lemonade" is concentrate. They both write an equation to represent the percent concentrate of the lemonade. Who is correct? Explain why

Sully's Equation

$$y = 0.25x$$

Kelly's Equation

$$y = 0.2x$$

EXIT TICKET –

Mr. Brust loves Taco Bell. He eats 5 burritos every 3 hours.

- Write an equation to represent this situation.
- What are your TWO variables and what do they represent:
- Use your equation to determine how long it would take to eat 18 burritos.

8.3 Proportional Representations

NOTES

MATH 7

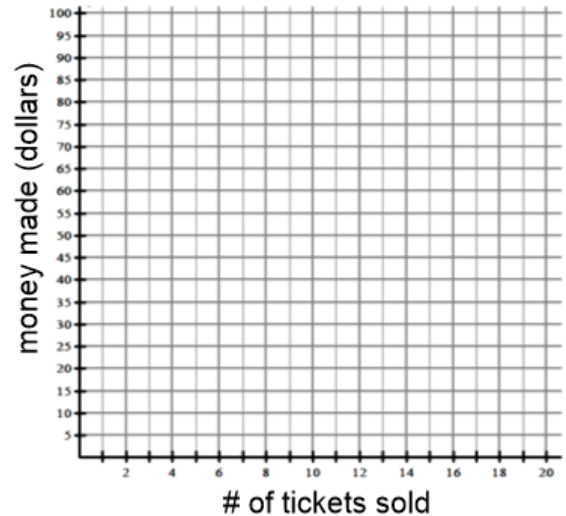
Write your questions here!

The middle school is selling tickets to the school dance. The equation shows how much money they make where t is the # of tickets sold and m is the money made.

Tickets Sold (#)	Money Made (\$)
2	
30	
	50
	75

EQUATION

$$m = 5t$$

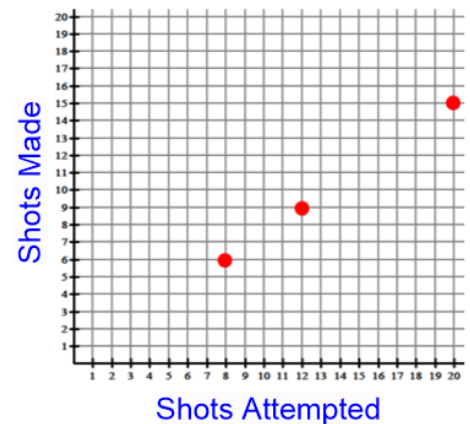


- How much money would they make if they sell 45 tickets?
- How many tickets do they need to sell in order to make \$64?

Verbal:

Shots Attempted	Shots Made
12	
9	
	18
	20

What does the point (8,6) mean?



Table

x	y
0	
8	
	3

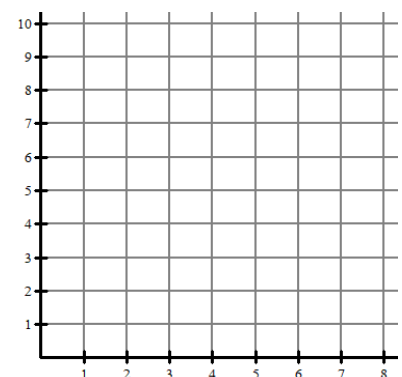
Equation

$$y = \frac{1}{4}x + 2$$

Is the equation proportional?

YES or No

Graph



SUMMARY:

Now, summarize your notes here!

8.3 Proportional Representations

PRACTICE

The following are proportional. Fill in the missing table, equation, and/or graph. Then answer the questions.

1. **Verbal:** Mr Kelly makes 3 dollars every 2 minutes tutoring math.

Table

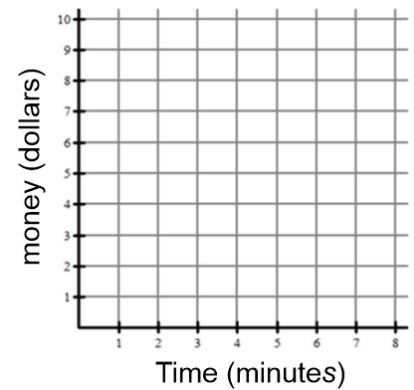
Time (minutes)	Money (\$)
0	
4	
	3
	12

Equation

$$k =$$

Write the equation.

Graph



- Use a sentence to explain what k means in this context.
- How much money will Mr. Kelly make in 60 minutes? Use your equation.
- How long will it take for Mr. Kelly to earn 100 dollars? Use your equation.

2. **Verbal:** Mr. Brust is trying to win a stuffed animal by playing the Claw game. He spends _____ per game.

Table

Games Played (#)	Money Spent (\$)
2	
15	
	9
	3

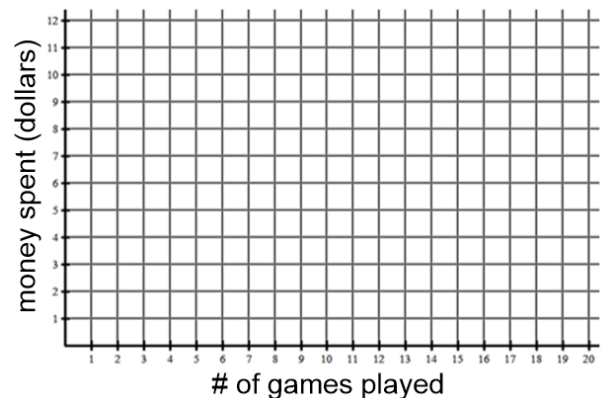
Equation

$$k =$$

Given the equation.

$$m = 0.5g$$

Graph



- Use a sentence to explain what k means in this context.
- How many games did Mr. Brust play if he spent \$10 on the Claw game? Use the equation.
- How much will 40 games of the Claw cost? Use the equation.

The following are proportional. Fill in the missing table, equation, and/or graph. Then answer the questions.

3. **Verbal:** The ratio of concentrate to water in “Ain’t Ur Granny’s Lemonade” is _____ cups to _____ cups.

Table

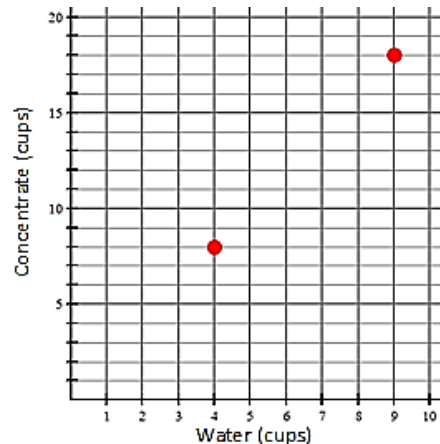
Water (cups)	Concentrate (cups)
4	
1	
	12

Equation

$$k =$$

Write the equation.

Graph



- Use a sentence to explain the meaning of the point (4,8).
- How many cups of water do you need to make the lemonade if you have 6 cups of concentrate?
- How many cups of concentrate do you need to make the lemonade if you have 40 cups of water?

Use the equation to fill in the table, answer the question, and graph.

4.

Table

x	y
0	
2	
6	
	15

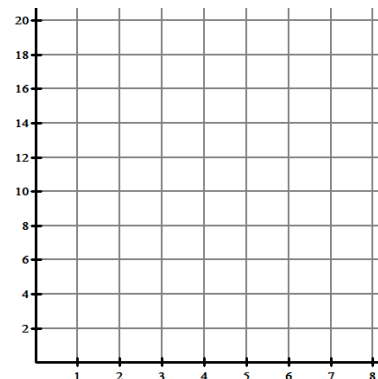
Equation

$$y = 3x$$

Is the equation proportional?

YES or No

Graph



5.

Table

x	y
0	
2	
4	
	4

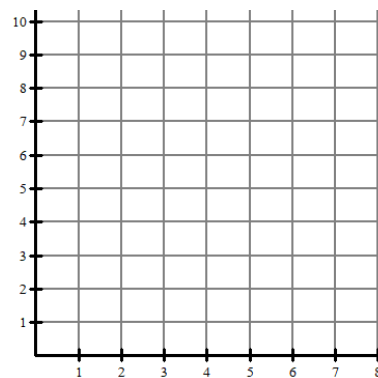
Equation

$$y = \frac{1}{2}x$$

Is the equation proportional?

YES or No

Graph



Use the equation to fill in the table, answer the question, and graph.

6.

Table

x	y
0	
2	
	6
	0

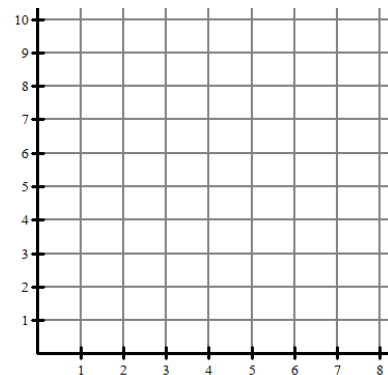
Equation

$$y = -2x + 8$$

Is the equation proportional?

YES or No

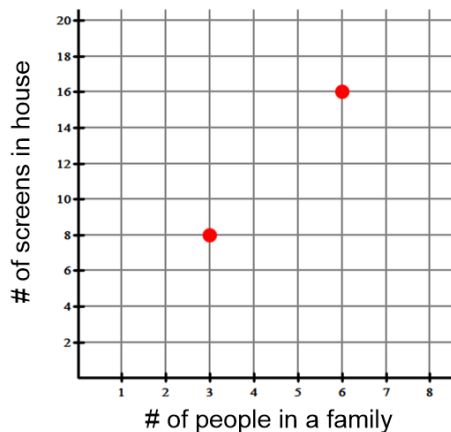
Graph



8.3 Proportional Representations

WRAP UP

1. The graph is proportional. Write the equation.



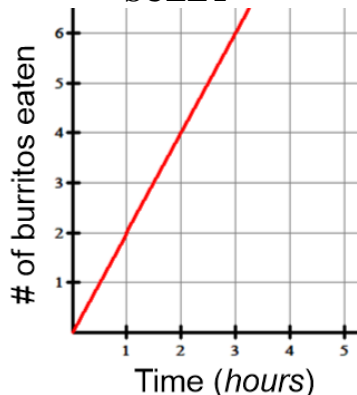
2. Answer the following question about the graph from #1.

- Explain the meaning of the point (6,16).
- How many screens would be in a house with 5 people?

EXIT TICKET –

Who eats Taco Bell faster? Sully, Kelly, or Brust? Explain why.

SULLY



$k =$

KELLY

Time (hours)	Burritos (#)
2	3
4	6
6	9

$k =$

BRUST

$$b = \frac{5}{3}t$$

Where b is the # of burritos eaten and t is time in hours.

$k =$

8.4 Comparing Proportions

MATH 7

Write your questions here!

Mr. Kelly and Mr. Sullivan are having a three point contest.
Who is the better 3 point shooter?

KELLY

Shots Attempted	Shots Made
3	2
6	4
15	10

SULLY

$$y = 0.7x$$

Each contestant gets 20 shots. Who wins the competition? By how much?

Write an equation from a table.

x	y
5	16
15	48
20	64

Is the relationship proportional?

If so, write the equation:

x	y
5	3
8	4.8
16	10

Is the relationship proportional?

If so, write the equation:

Compare Baking Companies

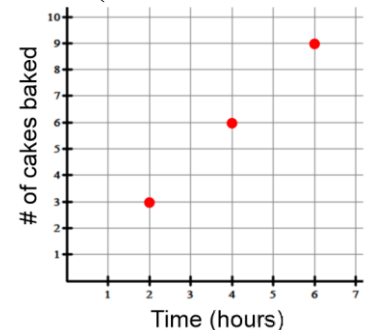
Sully Sweets

Makes 5 cakes every 3 hours

Kelly Confections

Time (hours)	Cakes (#)
2	3.5
8	14
12	21

BBG (Burst Baked Goods)



How long will it take each company to bake 30 cakes?

SUMMARY:

Now, summarize your notes here!

8.4 Comparing Proportions

PRACTICE

Determine if the tables are proportional. If they are proportional, write an equation.

1.

x	y
5	3
15	9
20	12
10	6

Is the relationship proportional?

If so, write the equation:

2.

x	y
0	3
2	11
6	27
3	15

Is relationship proportional?

If so, write the equation:

3.

x	0	12	6	24
y	0	4	2	8

Is relationship proportional?

If so, write the equation:

The following are proportional. Compare the relationships and answer the questions.

3. Rod and Tod are saving money over the summer.

ROD

Time (days)	Money Saved (\$)
2	9
4	18
6	27
8	36

Equation:

TOD

Todd saves \$20 every 5 days.

Equation:

a. Use a sentence to explain what k means in this context for each boy.

ROD:

TOD:

b. How much money will each boy have in 30 days? Use the equations.

ROD:

TOD:

c. How long will it take for each boy to save 200 dollars? Use the equations.

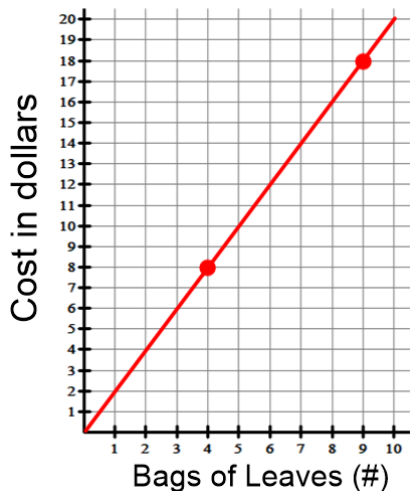
ROD:

TOD:

The following are proportional. Compare the relationships and answer the questions.

4. “Leaf it to Me” and “Leaf Baggers Inc “ are competing leaf raking companies.

Leaf it to Me



Equation:

Leaf Baggers Inc (LBI)

$$c = 2.5b$$

Where c is the cost and b is # of bags of leaves raked.

- a. Which company is cheaper? Justify your solution.
- b. Some people say these companies are RAKING in the cash. What would each company charge for raking 14 bags of leaves? Use your equations.

Leaf it to Me:

LBI:

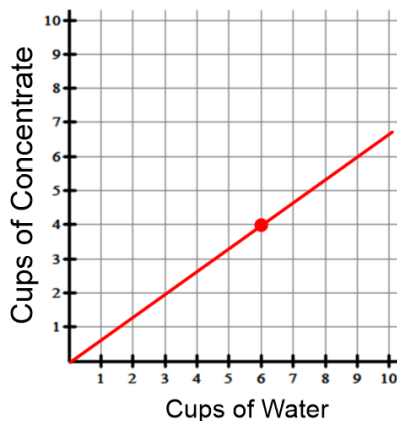
5. “Crusty Lemonade” and “Main Squeeze“ are competing lemonade recipes.

Crusty Lemonade

Water (cups)	Concentrate (cups)
8	2
10	2.5
12	3
14	3.5

Equation:

Main Squeeze



Equation:

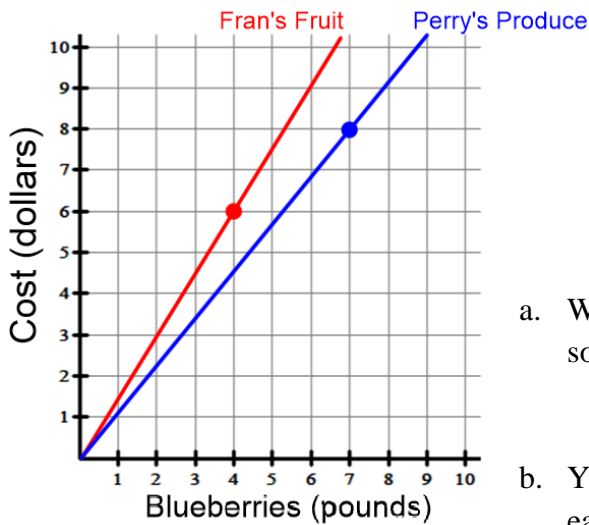
- a. How much water would you need to make lemonade for each recipe if you use 8 cups of concentrate? Use your equations.

Crusty Lemonade:

Main Squeeze:

Use the graph to write equations for each fruit stand. Answer the questions

7.



Fran's Fruit

Equation:

Perry's Produce

Equation:

- a. Which fruit stand sells blueberries at a cheaper price? Justify your solution.
- b. You have \$20 to buy blueberries. How many pounds could you get at each produce stand? Use your equations.

Fran's Fruit:

Perry's Produce:

Fill in all missing representations. Graph both Spongebob and Patrick on the same graph.

8.

Spongebob

Verbal:

Spongebob runs 5 meters every 4 seconds.

Equation:

Table:

Time (seconds)	Distance (meters)
0	
4	
8	

Is the relationship proportional?

YES or NO

Patrick

Verbal:

Equation:

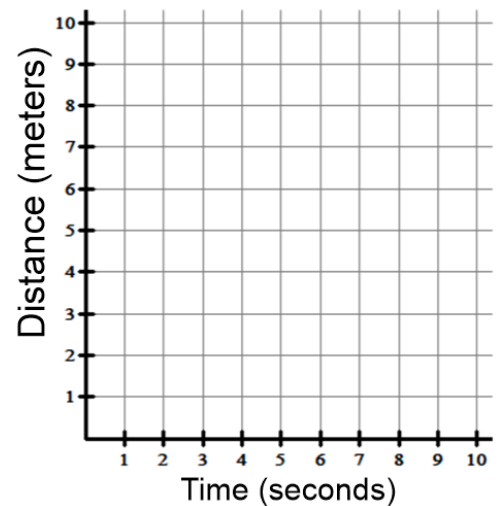
$$d = \frac{1}{2}t + 4$$

Time (seconds)	Distance (meters)
0	
4	
8	

Is the relationship proportional?

YES or NO

GRAPH:



- c. If the race is 100 meters long, who wins the race? How much do they win by?

8.4 Comparing Proportions

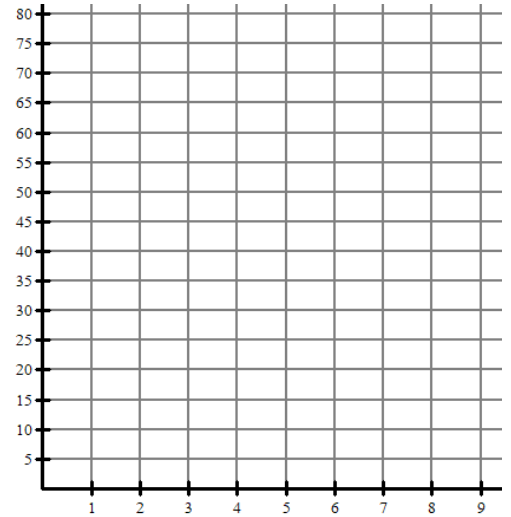
1. You don't feel like walking around the mall and decide to rent a Segway. Check out the rental companies.

Segway-R-Us: 8 dollars per hour

Get Ur Seg On: 6 dollars per hour

Fill in the table and graph companies! Label your graph!!!

Time Rented (hours)	Segway-R-Us Cost (\$)	Get Ur Seg On Cost (\$)
0		
1		
2		
3		
4		
10		



- a. Are both companies proportional? Explain why or why not?
- b. Write an equation for each company. Then use your equation to answer 3 and 4.
- Segway-R-Us Equation Get Ur Seg On Equation
- c. You have 80 dollars to spend on Segway. How many hours can you rent a Segway from each company?
- Segway-R-Us Get Ur Seg On
- d. You will be at the mall 4.5 hours. How much would a Segway cost from each company?
- Segway-R-Us Get Ur Seg On

Review

Fill in the table below.

1.

Ratio (Fraction)	Decimal	Percent
$\frac{3}{5}$		
		6 %
	0.35	

Answer the following.

2. In Bob's closet, there are 10 shirts and 4 pants.
 - a. What is the ratio of shirts to pants?
 - b. What is the ratio of shirts to total items?
 - c. What percent of the items in the closet are shirts?

The following is proportional. Fill in the missing table, equation, and verbal.

3. **Verbal:** Mr. Sullivan makes _____ Insta posts every _____ days.

Table

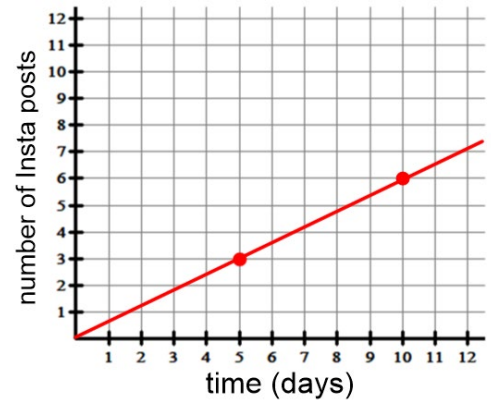
Time (days)	Insta Posts (#)
5	
2	
	6
	9

Equation

$k =$

Write the equation.

Graph



For questions 4-7, use the equation $y = \frac{5}{4}x$

4. Find y when $x = 8$

5. Find x when $y = -20$

6. Fill in the table

x	y
-12	
2	
	6
	-20

7. Is the equation proportional? YES or NO

8. Mr. Brust and Mr. Kelly are filling up their hot tubs. .

BRUST

Mr Brust pumps in 6 gallons of water every 2 minutes.

KELLY

Mr. Kelly already has 8 gallons of water in his hot tub, he pumps in 2 gallons of water every minute.

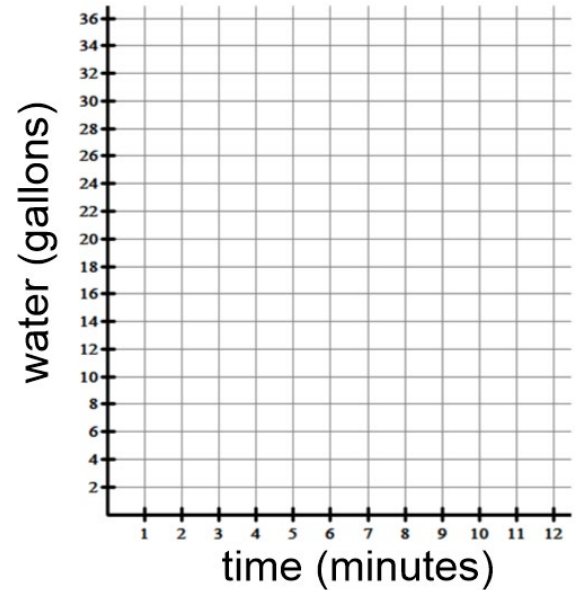
a. Complete the tables and graph each relationship. Label your lines!

BRUST

KELLY

Time (minutes)	Water (gallons)
0	
1	
2	
3	
4	
5	
10	

Time (minutes)	Water (gallons)
0	
1	
2	
3	
4	
5	
10	



b. Are the relationships proportional? Explain why or why not.

Is BRUST proportional = Yes or No

Is KELLY proportional = Yes or No

c. If they are proportional, write an equation to represent the situation.

d. How much water will Mr. Brust's hot tub have in 12 minutes? Use your equation.

e. How long will it take for Mr. Brust's hot tub to have 120 gallons of water? Use your equation.

f. **CHALLENGE** Mr. Kelly's hot tub holds a total of 2,040 gallons of water. He wants to use the tub in exactly one day from now. Will his hot tub be full? Show work to support your answer.