

Accelerated Math Study Sheet (Chapter 5)

Ratios and Proportions

Name _____

Block _____

Date _____

Test on Chapter 5 is Thursday, December 5

Test does include rate of change and slope from Math 7 book (see notes given)

Review your notes, quizzes, homework problems, and handouts for this chapter.

Be able to do the following:

- *Write and simplify a ratio.
- *Calculate unit rate and use it to make comparisons.
- *Write and simplify a complex fraction as it applies to unit rates.
- *Convert units using dimensional analysis.
- *Graph a relationship and tell whether or not it is proportional.
- *Write and solve a proportion using at least three methods.
- *Find the constant rate of change of a relationship.
- *Find the slope of a line on a graph of a relationship or from a table
- *Write an equation using the constant of proportionality.

Vocabulary

*Rate

*Unit Rate

*Complex fraction

*Measurement equivalent (name for one)

*Dimensional analysis

*Proportional/nonproportional

*Equivalent ratios

*Coordinate plane

*Quadrants

*x and y-coordinates

*x and y-axes

*origin

*proportion

*cross-products

*Constant rate of change

*Slope

*Direct variation

*Constant of variation

*Constant of proportionality

Accelerated Math Practice Problems
Chapter 5 (Ratios & Proportional Reasoning)

Name _____
Block _____ Date _____

<p>1)(calculator) Find unit rates to determine which person's heart is beating fastest.</p> <p>Ally 2 min 160 beats Jan 4.5 min 387 beats</p>	<p>2) (NO calculator) Find Jon's average speed in miles per hour if he runs $3\frac{2}{5}$ miles in $\frac{7}{8}$ hour.</p>	<p>3) (NO calculator) Find the slope of the line that goes through the points (4, 15) and (1,11)</p>
<p>4) (NO calculator) Write this percent as a fraction in simplest form. $21\frac{2}{3}\%$</p>	<p>5) (calculator) Show algebraic steps to solve this proportion.</p> $\frac{1.3}{n} = \frac{6}{23.4}$	<p>6) (NO calculator) There are 24 students in Kevin's math class. 6 of the students are girls. Find the simplified ratio of boys to girls.</p>

7) (calculator) Convert 17 centimeters per minute to meters per hour.

8) (calculator) For every girl taking martial arts classes, there are three boys taking martial arts classes at the same school. If there are 276 students taking classes, write and solve a proportion to predict the number of boys taking classes at the school. Remember to start with a word ratio.

9) (calculator) Fun Center rents popcorn machines for \$20 per hour. In addition to the hourly charge, there is a rental fee of \$32. Is the total cost of renting the machine proportional to the number of hours you rent it? Explain your reasoning.

Hours	1	2	3	4
Cost				

10) On map the distance between two cities is 4 centimeters. The actual distance is 100 meters.

A) Find the scale for the map.

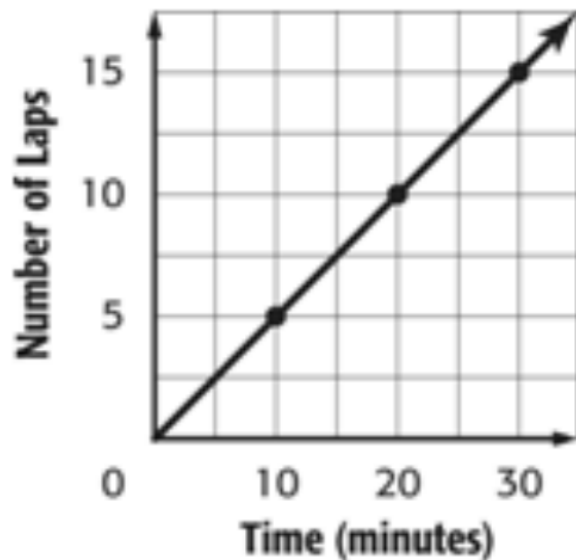
B) Find the scale factor.

11) Given these two points: (3,5) and (6,10)

A) Find the slope of the line that goes through the points

B) Does y vary directly with x on this line? Explain your reasoning.

12) Find the equation of this line.



13) Solve this proportion using "algebraic steps" discussed in class. Round to the nearest tenth if necessary.

$$\frac{0.45}{3} = \frac{2.8}{N}$$

14) The ratio of bus riders to those who don't ride the bus is one to five. If there are 480 students at the school, how many ride the bus? Write a word ratio, a proportion and solve the proportion.

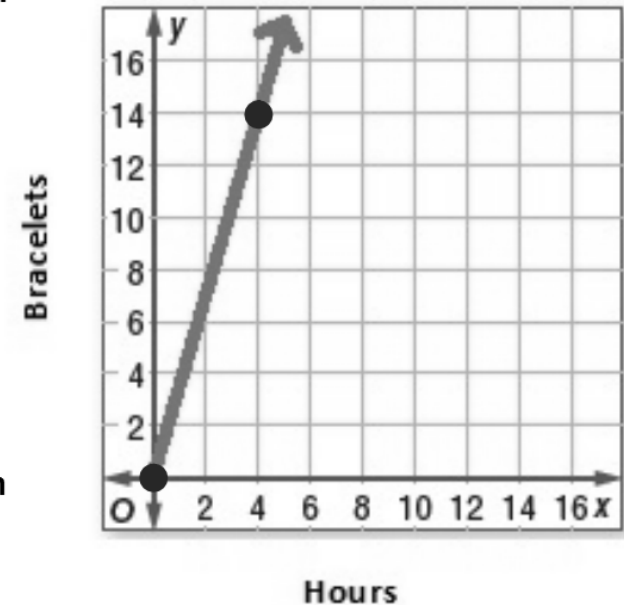
15) The amount of money (y) Jakes makes is proportional to the number of lawns he rakes (x). The equation of the line is $y = 15x$. What does the number 15 mean?

16) Find the constant rate of change represented on this chart.

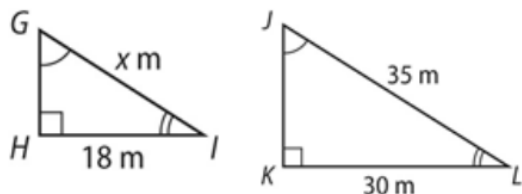
Age (yr)	Height (in.)
9	54
10	56
11	58
12	60

17) A) Write an equation that represents this situation.

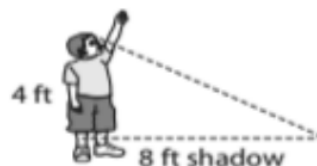
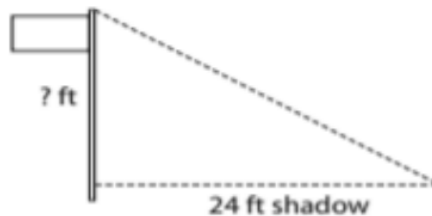
B) How many bracelets can Robin make in 3.5 hours?



18) Write a proportion that can be used to find the value of x in these two similar triangles. Then solve the proportion.



19) Write a proportion that can be used to find the height of the flagpole. Then solve the proportion.



20) A model airplane is built with a wingspan of 30 centimeters. The actual wing span is 42 meters.

A) What is the scale of the model?

B) What is the scale factor?

21) Use dimensional analysis to change 15 milliliters/sec to liters per hour.

22) Find the best buy based on unit price.

Cheddar A 3 pounds cheese \$12.99

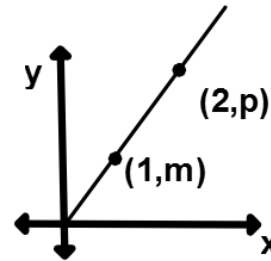
Cheddar B 20 oz \$5.39

23) Find the slope for each of the following.

A) line that goes through points (6,8) and (2,3)

B) line with equation $y = 3x$

C) graph looks like this



24) The number of dollars earned babysitting (y) is proportional to the number of hours one babysits (x). Who earns more per hour?

Sara $y = 8x$

Jan \$54 for 6 hours

Meg line goes through the point (3,30)

25) Use this graph to answer the following questions.

A) What is the slope of this line?

B) What does the slope represent in words?

C) What is the equation of this line?

D) What is the meaning of the point 2, 10 ?

