First name: _____ Last name: _____ Student ID: _____

Ratio, Rate and Proportion Homework

Basic problems:

1. Solve each proportion.

1. $\frac{28}{c} = \frac{44}{858}$	2. $\frac{234}{63} = \frac{r}{21}$	3. $\frac{u}{52.8} = \frac{174.2}{114.4}$
4. $\frac{f}{69.3} = \frac{204}{92.4}$	5. $\frac{92.4}{98} = \frac{52.8}{p}$	6. $\frac{574}{28} = \frac{z}{56}$

2. Find the unit rate.

1. 9 for $39.60 _____ each	2. 72 chairs in 4 rows _____ in each row
3. 192 students in 6 buses _____ in each bus	4. $72.66 for 14 hours _____ per hour

3. Fill in the missing dimensions. Round your answer to the nearest tenth.

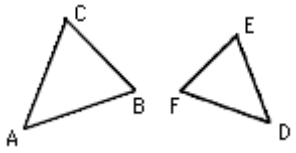
1. The scale factor for a model is 6 mm = 11.39 m model: 76 mm actual: _____ m	2. The scale of a map is 3 in = 8 mi map: 5.5 in actual: _____ mi
3. The scale factor for a model is 5 cm = _____ m model: 58.7 cm actual: 140.9 m	4. The scale of a map is 1 cm = 12 km map: 2.9 cm actual: _____ km

4. Create a proportion from each set of numbers. Only use 4 numbers from each set of numbers.

1. 28, 112, 440, 280, 44	2. 297, 387, 88, 344, 99

5. Use a proportion to find the unknown length in the pair of similar figures.
(*Drawings are not drawn to scale*)

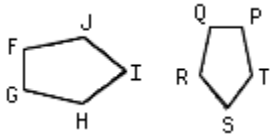
1.



length of sides:

AC = _____	FD = 45 m
CB = 140 m	ED = 20 m
AB = _____	FE = 50 m

2.



length of sides:

JI = 56 cm	PT = 24 cm
IH = 84 cm	RQ = 12 cm
FJ = _____	TS = 32 cm
HG = 21 cm	SR = 48 cm
GF = 49 cm	QP = 28 cm

6. Fill in the missing value. Assume simple interest.

1.

principal	$98,124
interest rate	_____/ yr
time	48 months
simple interest	$6,073.33

2.

principal	_____
interest rate	11.05% / yr
time	6 years
simple interest	$898,694.56

7. Complete the unit conversions.

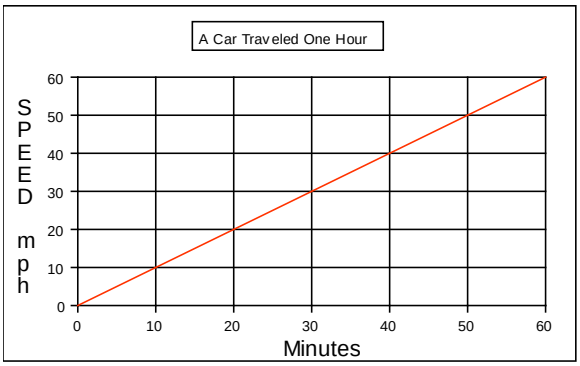
1. 1,200,000 centiliters to kiloliters	2. 10 centimeters to millimeters
3. 28 kilograms to grams	4. 24,000 pounds to tons

Challenge problems

1. The odometer of a car showed 43,842.7 miles when the car got to a sign that said "Detour 1500 feet ahead." What will the odometer say when the car reaches the detour? (There are 5,280 feet in a mile.)

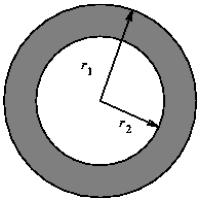
2. The ratio of girls to boys in a class was 4:5. After 4 girls were added to the class, it was found that the number of boys and girls was now equal. How many students are now in the class?

3. The graph below shows the speed, in miles per hour, of a car for one hour. At the end of the hour, how far had the car gone?



4. A tub contains two faucets. Faucet **A** can fill the tub in 15 minutes and faucet **B** can fill the tub in 10 minutes. How long will it take to fill the tub using both faucets?

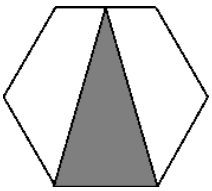
5. The shaded and unshaded areas in these concentric circles are equal. What is the ratio r_1 / r_2 of the larger to the smaller radius?



6. Three workers are named **X, Y** and **Z**. Suppose that together **X** and **Y** can do a job in 4 hours, **X** and **Z** can do it in 6 hours and **X, Y** and **Z** can do the job in 3 hours. How many hours will **Y** alone need to do the job?

7. Four men can complete a job in three hours. Five women can complete the same job in two hours. How many hours would it take a team of two men and three women to complete the job?

8. What fraction of the area of the regular hexagon is the shaded triangle?



9. In a group of men and women, the average age is 31. If the men's ages average 35 years, and the women's ages average 25, then what is the ratio of the number of men to the number of women?

10. An automobile travels from point A to point B at a speed of 40 km/h. How fast must it travel in the opposite direction to achieve an average speed of 50 km/h for the round trip?

11. Tom has large, median and small three types of cups. The capacity of 2 large cups equals that of 5 median cups and the capacity of 3 median cups equals that of 4 small cups. Find the ratio of capacities of 2 large cups + 3 median cups + 4 small cups to that of 5 large cups + 4 median cups + 3 small cups.

12. Allen, Bob and Catherine purchased some products in a shopping mall. The $\frac{1}{2}$ of amount of money Allen spent equals $\frac{1}{3}$ of that of Bob spent and the $\frac{3}{4}$ of amount of money Bob spent equals $\frac{4}{7}$ of that of Catherine spent. The result is Catherine spent $93 more than Allen spent. Find the total amount they three spent.