

First name: _____ Last name: _____

Student ID: _____

Ratio, Rate, and Percent Homework**Basic problems:****1. Solve each proportion. Show work!**

1. $\frac{792}{36} = \frac{x}{27}$	2. $\frac{x}{153} = \frac{5}{17}$	3. $\frac{251}{45} = \frac{546}{y}$
4. $\frac{2x-1}{28} = \frac{3}{4}$	5. $\frac{x}{109.2} = \frac{64.4}{58.8}$	6. $\frac{442}{a+1} = \frac{238}{21}$

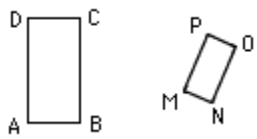
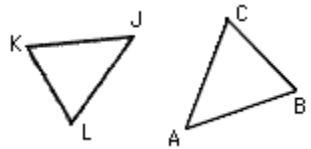
2. Find the unit rate. Round your answer to the nearest hundredth where necessary.

1. 1464 calories for 6 servings of pie _____ calories per serving	2. a 4.3-kg bag of peaches for \$8.90 _____ per kg
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3. Create a proportion from each set of numbers. Only use 4 numbers from each set of numbers.

1. 450, 650, 39, 27	2. 45, 173, 35, 98, 126
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4. Use a proportion to find the unknown length in the pair of similar figures.
(drawings are not drawn to scale)

<p>1.</p>  <p>length of sides:</p> <p>DA = _____ OP = 18 m</p> <p>AB = 60 m MN = 18 m</p> <p>CD = 60 m PM = 30 m</p> <p>BC = _____ NO = 30 m</p>	<p>2.</p>  <p>length of sides:</p> <p>KJ = 96 ft CB = 72 ft</p> <p>JL = 112 ft AB = 108 ft</p> <p>KL = 64 ft AC = _____</p>
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5. Fill in the missing dimensions. Round your answer to the nearest tenth where necessary.

<p>1. The scale of a map is 2 in = _____ mi</p> <p>map: 1.9 in</p> <p>actual: 6.2 mi</p>	<p>2. The scale factor for a model is 7 in = 10.8 ft</p> <p>model: 62.2 in</p> <p>actual: _____ ft</p>
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6. Fill in the missing value. Assume simple interest. Recall: $I = Prt$

<p>1.</p> <p>Principal (P) \$70,033</p> <p>interest rate (r) _____</p> <p>Time (t) 40 months</p> <p>simple interest (i) \$7,073.33</p>	<p>2.</p> <p>Principal (P) _____</p> <p>interest rate (r) 10.85% / year</p> <p>Time (t) 5 years</p> <p>simple interest (i) \$478,592.42</p>
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7. Complete.

<p>1. If the probability that a chicken will cross the road is one-fourth, then what is the ratio that the chicken will cross the road to the chicken will not cross the road? _____ to _____</p>	<p>2. Which is bigger, a third of 36 or one-sixth of 138?</p>
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Challenge problems

1. Find x/y if $(3x + 2y) / (2x + 3y) = \frac{3}{4}$.

2. In a traffic study, a survey of 50 moving cars is done and it is found that 20% of these contain more than one person. Of the cars containing only one person, 60% of these are driven by women. Of the cars containing just one person, how many were driven by men?

3. Three tenths of our planet Earth is covered with land and the rest is covered with water. Ninety-seven percent of the water is salt water and the rest is fresh water. What percentage of the Earth is covered in fresh water?

4. Fifty students were surveyed about their participation in hockey and baseball. The results of the survey were:

- 33 students played hockey
- 24 students played baseball
- 8 students played neither hockey nor baseball

What percent of the students surveyed played both hockey and baseball?

5. I have sold $\frac{2}{3}$ of my pencils for \$0.15 each. If I have 8 pencils left, how much money did I collect for the pencils I sold?

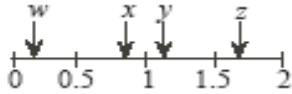
6. In a recent election at the Dr. John Hugh Gillis High School, Susie Cook received 542 votes, Greg MacDonald received 426 votes and Travis Austen received 130 votes. If 90% of those eligible to vote did so, what was the number of eligible voters?

7. In a recent survey, 40% of houses contained two or more people. Of those homes containing only one person, 25% contained a male. What is the percentage of all houses which contain exactly one female and no males?

8. Nathalie has some quarters, dimes and nickels. The ratio of the number of quarters to the number of dimes to the number of nickels that she has is 9 : 3 : 1. The total value of these coins is \$18.20. How many coins does Nathalie have?

9. In the diagram, w , x , y , and z represent numbers in the intervals indicated. Which fraction represents the largest value?

- (A) x/w (B) y/x (C) y/w (D) z/x (E) z/w



10. Chantelle had two candles, one of which was 32 cm longer than the other. She lit the longer one at 3 p.m. and lit the shorter one at 7 p.m. At 9 p.m., they were both the same length. The longer one was completely burned out at 10 p.m. and the shorter one was completely burned at midnight. The two candles burned at different, but constant, rates. What was the sum of the original lengths of the two candles?

11. Three students have to write a make up test. Mark scored $24/60$ on his first test and $32/40$ on his make up test. Jake scored $35/70$ on his first test and $54/60$ on his makeup test. Marilyn scored $27/90$ on her first test and $45/50$ on her second test.

a) Which student improved the most and by what percentage?

b) If the teacher gives each student a final grade using 70% of the makeup test mark and 30% of the first test mark, what mark would each student receive? Who did the best overall?