

First name: _____ Last name: _____

Student ID: _____

Ratio, Rate, and Percent Homework**Basic problems****1. Find the unit rate.**

1. 13 for \$72.28 _____ each	2. an international phone call costs \$4.74 for 32 minutes _____ cents per minute
-------------------------------------	--

2. Convert the given values.

1. Fraction: $\frac{3}{8}$ Decimal: Percent:	2. Fraction: Decimal: 0.766 Percent:	3. Fraction: Decimal: Percent: $\frac{2}{3}\%$
---	---	---

3. Solve each proportion and show work.

1. $\frac{1032}{x} = \frac{430}{15}$	2. $\frac{45}{162} = \frac{24}{n}$	3. $\frac{x}{136} = \frac{22}{34}$
--------------------------------------	------------------------------------	------------------------------------

4. Find the missing values, assuming simple interests.

1. Principal: \$16,818 Time: 120 months Interest earned: \$3363.60 Interest rate (annual): _____	1. Steps:
2. Principal: \$24000 Time: _____ years Interest earned: \$5400 Interest rate (annual): 4.5%	2. Steps:

Challenge problems

1. Jane recently inherited \$800,000 from her grandmother and she wants to invest it all in an ETF that usually returns 5% per year, and she wants to invest it for 2 years to use the money to go to Mars. Can you help her find out how much money she will have before going to Mars (assuming compound interest)?

2. If $\frac{x-3y}{y} = 12$, what is $\frac{x}{y}$?

3. Abraham's answered 30 algebra and 50 geometry questions, each worth one mark. He got 70% of the algebra questions correct, and his overall exam mark was 80%. How many geometry questions did he answer wrongly?

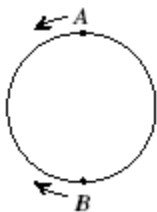
4. Luke has played 20 games and has a 95% winning percentage. Without losing any more games, how many more games in a row must he win to reach exactly a 96% winning percentage?

5. Emily was at a garage sale where the price of everything was reduced by 10% every 15 minutes. At 9:00 am, the price of a carpet was \$10.00. As soon as the price of the carpet fell below \$8.00, Emily bought it. At what time did Emily buy the carpet?

6. In a bin at the Gauss Grocery, the ratio of the number of apples to the number of oranges is 1 : 4, and the ratio of the number of oranges to the number of lemons is 5 : 2. What is the ratio of the number of apples to the number of lemons?

7. Paul can complete a job in 4 hours while Jean takes 6 hours to complete the same job. How long would it take Paul and Jean to complete the job working together?

8. On a circular track, Alphonse is at point A and Beryl is diametrically opposite at point B. Alphonse runs counterclockwise and Beryl runs clockwise. They run at constant, but different, speeds. After running for a while, they notice that when they pass each other it is always at the same three places on the track. What is the ratio of their speeds?



9. Derek and Rachel is having a disagreement regarding their parents' investment plan. Their parents invested \$4000 for each one of them 3 years ago earning 5% return every year; however, Derek's investment has simple interest and Rachel's investment has compound interest. Derek says both of them will have the same amount of money by now, but Rachel thinks she has more money now. Can you settle the debate with calculations?

10. An empty truck weighs 2000 kg. After the truck was loaded, freight made up 80% of the weight of the loaded truck. At the first stop one fourth of the freight was unloaded. What percent of the loaded truck's weight did the load make up after that? (Hint: freight = load.)

11. A fresh mushroom contains 90% water. How many kilograms of fresh mushrooms are needed in order to make 1 kg of dried mushrooms containing 11% water?

12. A country with 135 million persons has an area of 150000 square kilometers. What is the population density expressed in the number of persons per square kilometer?