

MPM 1D Unit 1 Handout #5
Ratios, Rates, and Unit Rates

Date:

Name:

Ratio – A comparison of two or more quantities measured in the same units

Representations: $\frac{a}{b}$ OR a:b OR a to b

Rate – A comparison of two quantities measured in different units (you MUST state the units!)

Unit Rate – A rate per single unit (divide the first quantity by the second to express a rate as a unit rate)

Part 1: Do the Math

1. Write three ratios equivalent to 1:2:5.

2. Aubry has 4 pairs of black socks, 8 pairs of white socks, and 6 pairs of purple socks. Write this as a ratio ***in lowest terms***.

3. The ratio of boys to girls in our class is $\frac{14}{16}$. How many total students are in the class? How is this representation of a ratio different from a fraction? Write the number of girls as a fraction of the total number of students in the class, in lowest terms.

4. Eight out of ten people prefer Crest toothpaste. How many people would prefer Crest in a group of 190 people?

5. Landon rides his bike at an average speed of 24 km/h. If he rode at this speed for two hours, how far would he travel? How far could he go in 4.5 hours?

6. Mrs. Ryan can type 270 words in 3 minutes. Write this as a rate and then a unit rate.

7. Determine which is a better buy for each of the following. Show your work!
 - a. \$4.39 for 1500g of pasta OR \$1.19 for 550 g of pasta

 - b. \$19.99 for 24 rolls of toilet paper OR \$5.49 for 8 rolls of toilet paper

 - c. \$300 for a one-year gym membership OR \$24 per month at the gym

Part 2: Explain the Math

1. Explain how to write an equivalent ratio, as well as how to find a unit rate from a rate. Include examples to support your explanation.

2. What are some other factors that you might consider when you are comparing prices to find the better buy? Come up with at least three questions that you have about one of the parts from question seven that would help you make a more informed decision.

Part 3: Apply the Math

To approximate length in inches when you know length in centimeters, you can use the fact that 30 cm is approximately 12 inches. (Set up equivalent ratios!)

a) If a person is 160 cm tall, what is their approximate height in inches?

b) If a person is 70 inches tall, what is their approximate height in centimeters?