

AIM: 7-3 I will be able to compute RATES and UNIT RATES!

Name _____
Ms. Piccolo

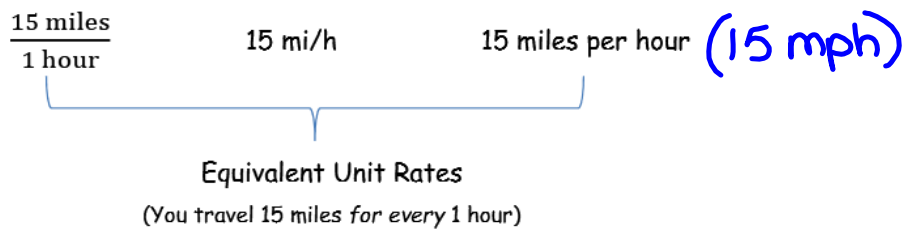
Date _____
Math 6 - Period _____



Let's Investigate: How can we use rates to compare quantities?

- A rate is written as a ratio/fraction of two quantities with different units.
- A unit rate has a denominator of one. **UR1**
- When the first quantity in a unit rate is an amount of money, the unit rate is called unit price or unit cost.

When reading a rate, the fraction bar, the slash, and the word 'per' means "for every..."



EXAMPLE: Find the UNIT RATE or UNIT COST of the problems below:

<p>1) It rains <u>28 inches</u> in <u>4 hours</u>. How many inches does it rain per hour?</p> $\frac{\text{in}}{\text{hr}} = \frac{28 \text{ in}}{4 \text{ hr}} = \frac{?}{1 \text{ hr}}$ <p style="text-align: center;">$28 \div 4 = 7 \text{ in/hr}$</p>	<p>2) You're hosting a party for <u>12 people</u>. The food and drinks for the party cost <u>\$66</u>. What is the cost per person?</p> $\frac{\$}{\text{P}} = \frac{\$66}{12}$ <div style="text-align: center;"> $\begin{array}{r} 5.5 \\ 12 \overline{) 66.0} \\ \underline{-60} \\ 60 \\ \underline{-60} \\ 0 \end{array}$ <p>→ \$5.50 per person</p> </div>
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3) Ms. Piccolo's gym offers the following options. Which option would be the better buy?

Step 1: Find the unit price for each option. Include UNITS!

Option 1: \$90 for 6 classes	Option 2: \$246 for 15 classes
$\frac{\$}{\text{classes}} = \frac{\$90}{6}$ $6 \overline{) 90} \begin{array}{r} 15 \\ -6 \\ \hline 30 \\ -30 \\ \hline 0 \end{array}$ <p style="text-align: center;">\$15 per class</p>	$\frac{\$}{\text{classes}} = \frac{\$246}{15}$ $15 \overline{) 246.0} \begin{array}{r} 16.4 \\ -15 \\ \hline 96 \\ -90 \\ \hline 60 \end{array}$ <p style="text-align: center;">\$16.40 per class</p>

Step 2: Compare the cost per class. What option is the better buy and why?

The better buy is Option 1 because it costs less money per class!

$$\$15 < \$16.40$$



Now You Try! Find the unit rate or unit cost for each problem. Include units!

<p>4) If your heart beats <u>225 times</u> in <u>3 minutes</u>, how <u>many times</u> does your heart beat in <u>one minute</u>?</p> $\frac{225 \text{ beats}}{3 \text{ minutes}}$ $3 \overline{) 225} \begin{array}{r} 75 \\ -6 \\ \hline 15 \\ -15 \\ \hline 0 \end{array}$ <p style="text-align: center;">75 bpm</p>	<p>5) If you can type <u>2400 words</u> in <u>60 minutes</u>, how <u>many words</u> can you type <u>per minute</u>?</p> $\frac{2400 \text{ words}}{60 \text{ min.}}$ $60 \overline{) 2400} \begin{array}{r} 40 \\ -240 \\ \hline 00 \end{array}$ <p style="text-align: center;">40 words per minute</p>
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6) A vine can grow 6 inches in 12 hours.
What is the peak growth rate in inches
per hour?

$$\frac{6 \text{ in.}}{12 \text{ hr}} \rightarrow 12 \overline{) 6.0} \begin{array}{r} \times .5 \\ - 60 \\ \hline 0 \end{array}$$

0.5 in/hr

7) A skater took 2 minutes 30 seconds to complete a 1500 meter race. What was the skater's average speed in meters
per second?

$$2 \text{ min } 30 \text{ sec} = 120 + 30 = 150 \text{ sec}$$

$$\frac{\text{m}}{\text{sec}} \quad \frac{1500 \text{ m}}{150 \text{ sec}} = 10 \text{ m/sec}$$

8) A market sells pasta in two ways:

- 10 pounds for \$15
- 2 pounds for \$3.98

Which is the better buy? Show your work!

$$\frac{\$15}{10 \text{ lbs.}} \rightarrow \$1.50/\text{lb}$$

$$\frac{\$3.98}{2 \text{ lbs}} \rightarrow \$1.99/\text{lb.}$$

9) Ms. Piccolo needs to buy Dolce cat food. She sees two different sizes that cost different amounts.

- 3 pounds for \$19.50
- 5 pounds for \$30.50

Which is the better buy? Show your work!

$$\frac{\$19.50}{3} = \$6.50/\text{lb.}$$

$$\frac{\$30.50}{5} = \$6.10/\text{lb.}$$

Better Buy

Unit Rates in Real Life

Step 1: Find 2 similar products to compare. Carefully cut out the items (including the price) and paste below.

Step 2: Write the cost and size of each item below as a **FRACTION** with the price in the numerator and the size (ounces, number, etc.) in the denominator.

Item 1:

Item 2:

Step 3: Find the **UNIT PRICE** by dividing the **COST** by the **SIZE**.
Round to the nearest hundredth.
Show your work below. Then, check your math with a calculator.