

I can calculate unit rates. I can use unit rates to solve real life problems.

## Part I: Rate and Unit Rate

### Rates and Unit Rates

- Rate** is a ratio of 2 measurements having different units.
- You must include units when writing rates!

Example: 1) 75 miles in 3 hours

$$\frac{75 \text{ miles}}{3 \text{ hours}}$$

2) 3 pizzas for 8 people

$$\frac{3 \text{ pizzas}}{8 \text{ people}} \quad \frac{8 \text{ people}}{3 \text{ pizza}}$$

A **Unit rate** is a rate that has been simplified so that the denominator is 1.

Find the Unit rate by dividing the numerator by denominator.

1 on the bottom

top ÷ bottom

Example: 3 pizzas for 8 people  $\frac{3 \text{ pizzas}}{8 \text{ people}} \div \frac{8}{8} = \frac{0.375 \text{ pizzas}}{1 \text{ person}}$  or 0.375 (3/8) of a pizza per person

PROBLEM	RATE	UNIT RATE
75 miles for 3 hours	$\frac{75 \text{ miles}}{3 \text{ hours}}$	$\frac{25 \text{ miles}}{1 \text{ hr}}$
10 people to 4 pizzas	$\frac{10 \text{ people}}{4 \text{ pizzas}}$	$\frac{2.5 \text{ people}}{1 \text{ pizza}}$
\$50 for 5 GB of data	$\frac{\$50}{5 \text{ GB}}$	$\frac{\$10}{1 \text{ GB}}$

- 1) Mrs. Edwards travels 250 miles every other weekend to Hatteras, North Carolina. It takes about 4 hours. What is my average speed in Miles per hour?

$$\frac{250 \text{ mi}}{4} = \frac{62.5 \text{ Miles}}{1 \text{ hour}} = 62.5 \text{ mph}$$

- 2) LeBron James played a total of 82 games last season and scored 2,255 points. On Average, how many points did he score per game?

$$\frac{2255 \text{ points}}{82 \text{ games}} = \frac{27.5 \text{ points}}{1 \text{ game}}$$

- 3) A Skydiver falls 280 feet in 4 seconds. How many feet does the skydiver fall per second?

$$\frac{280 \text{ feet}}{4 \text{ sec}} = \frac{70 \text{ feet}}{1 \text{ sec}}$$

- 4) Mrs. Ray used 6 gallons to drive 180 miles. How many miles per gallon does her car get?

$$\frac{180 \text{ miles}}{6 \text{ gal}} = \frac{30 \text{ miles}}{1 \text{ gallon}}$$

## Part II: Unit Price and Best Buy

- Shoppers need to be able to calculate Unit Prices to find the Best Buy.

What is Unit Price?	The <u>Price</u> of <u>1</u> item or <u>1</u> unit Example: \$0.50 per pound, \$0.10 per cookie
How do you calculate Unit Price?	$\frac{\text{money}}{\text{amount}} = \text{money} \div \text{amount} = \frac{\text{price}}{\text{number of items/units}}$
What is Best Buy?	The item with the <u>LOWEST</u> Unit Price <u>Best Deal</u>

Below is information about Choco Chippies Cookies

Package Size	Number of Cookies	Package Price	Unit Price
Snack	4	\$0.50	$\frac{\$0.50}{4} = \$0.13/\text{cookie}$
Regular	17	\$1.39	$\frac{\$1.39}{17} = \$0.08/\text{cookie}$
Family	46	\$3.99	$\frac{\$3.99}{46} = \$0.09/\text{cookie}$
Giant	72	\$5.29	$\frac{\$5.29}{72} = \$0.07/\text{cookie}$

- Put the packages in order from best buy to worst buy.

Giant, Regular, Family, Snack

Best Buy  $\longrightarrow$  Worst Buy

TRY IT: Find the best buy. Show your work!!

- 1) 6 drinks for \$4.50 or 12 drinks for 8.25? 2) 4 doughnuts for \$2.30 or a dozen doughnuts for \$7.20?

$$\frac{4.50}{6} = \frac{\$0.75}{\text{drink}}$$

$$\frac{8.25}{12} = \frac{\$0.69}{\text{drink}}$$

$$\frac{2.3}{4} = \frac{\$0.58}{\text{doughnut}}$$

$$\frac{7.20}{12} = \frac{\$0.60}{\text{doughnut}}$$

- 3) 1, 12 pack of pepsi for \$3.99 3, 12 packs of pepsi for \$10 24 pack of pepsi for \$5.99 4) One dozen donuts for \$8.99 3 dozen donuts for \$25 1/2 dozen fir \$5.00

$$\frac{3.99}{12} = \frac{\$0.33}{\text{pepsi}}$$

$$\frac{10}{36} = \frac{\$0.28}{\text{pepsi}}$$

$$\frac{8.99}{12} = \frac{\$0.75}{\text{donut}}$$

$$\frac{25}{36} = \frac{\$0.69}{\text{donut}}$$

$$\frac{5.99}{24} = \frac{\$0.25}{\text{pepsi}}$$

$$\frac{5}{6} = \frac{\$0.83}{\text{donut}}$$