MDI- Unit Rate

$$\frac{20}{2} = \frac{10 \text{ min}}{1 \text{ mi}}$$

If it takes Sasha 20 minutes to walk 2 miles, at this rate, how long will it take her to walk 5 miles?

(50 min)

$$\frac{20}{2} = \frac{x}{5}$$

David completed 48 push ups in 3 days. If he continues at this rate, how many will he complete in 30 days?

$$\frac{48}{3} = \frac{16}{1} \quad 480$$

$$(16)(30) = 480$$

$$\frac{48}{3} = \frac{480}{30}$$

4.1 ½

Ratios and Proportions:

Objective: Reason correctly with ratios and proportions.

What is a Ratio?

A comparison of two quantities by division

3/5 $\frac{7}{8}$ Like a fraction!

1 to 6   2:3

And a Proportion?

Two ratios that are equal

2/4 = 1/2 $\frac{5}{8} = \frac{15}{24}$

Like Equivalent Fractions!

Determining if something is proportional:

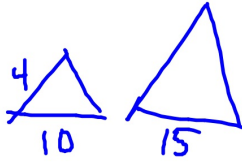CROSS MULTIPLY: If the products are equal, it will be a proportion.

$$\frac{12}{24} = \frac{10}{22}$$

$$12 \times 22 \overset{?}{=} 24 \times 10$$

$$264 \overset{?}{\neq} 240 \quad \text{No!}$$

Example 1: Are the ratios proportional?

$$\frac{4}{10} \overset{?}{=} \frac{6}{15}$$

$4 \cdot 15 = 6 \cdot 10$
$60 = 60$ yes!

Example 2:

Doritos has a deal to get 3 bags of chips for $7.25, while Lays has a deal to get 2 for $5.50. Are the sales proportional?

$$\frac{3}{7.25} = \frac{2}{5.50}$$

$16.50 \overset{?}{=} 14.50$
No

To find the value for a variable within a proportion. WE STILL WILL CROSS MULTIPLY

Example 3:

$$\frac{9}{x} = \frac{12}{8}$$

$$\frac{12x = 72}{12 \quad 12}$$

$X = 6$

Example 4

3 boxes of nails cost $28.80. How much do 5 boxes cost?

$$\frac{3}{28.80} = \frac{5}{X}$$

$X = \$48$

Example 5

Hot wings are sold in various sizes proportionally. 8 hot wings cost $6.50. A bucket of wings has 28 total. How much does a bucket cost.

$$\frac{8}{6.50} = \frac{28}{X}$$

$X = \$22.75$

Example 6 (We do)

$$\frac{x-10}{3} = \frac{2}{8}$$

Example 7 (You do)

$$\frac{6}{9} = \frac{10}{x+1}$$

HOMEWORK:
Proportions Worksheet

$6 = 8(x-10)$
$6 = 8x - 80$
$\quad +80 \quad +80$
$$\frac{86 = 8x}{8 \quad 8}$$
$X = 10.75$

EXIT TICKET

1. $\dfrac{10}{45} = \dfrac{x}{9}$

2. $\dfrac{14}{x} = \dfrac{154}{253}$

3. In four hours of work, I made $38. How much would I expect to make in ten hours?

4. If I get 17 out of 20 questions right on a quiz, how many would I expect to get right on a 50 question test?