Welcome!

DO NOW:

- Complete your **Attendance Question** in Google Classroom!
- Today we'll be taking notes on **6.2 in the new packet**.

Homework: #107 MML 6.1 due Tuesday 2/9
#108 MML 6.2 due Friday 2/12

6.2 Proportions

6.2 Objective A: Write Sentences as Proportions.

A **Proportion** is when two ratios are equal.

If $\frac{a}{b}$ and $\frac{c}{d}$ are two ratios, then $\frac{a}{b} = \frac{c}{d}$ is a proportion

Ex. 1. Write each sentence as a proportion.

a. 10 diamonds is to 6 opals as 5 diamonds is to 3 opals

$$\frac{10}{6} = \frac{5}{3}$$

b. 6 eagles is to 58 sparrows as 3 eagles is to 29 sparrows.

$$\frac{6}{58} = \frac{3}{29}$$

c. $2\frac{1}{4}$ cups of flour is to 24 cookies as $6\frac{3}{4}$ cups of flour is to 72 cookies.

$$\frac{2\frac{1}{4}}{24} = \frac{6\frac{3}{4}}{72}$$

6.2 Objective B: Determine whether each proportion is true or false.

Using **Cross Products** to Determine Whether Proportions are **TRUE** or **FALSE**.

$\frac{a}{b} \times \frac{c}{d}$ $\quad a \cdot d = c \cdot b$

Ex. 2. Determine whether each proportion is TRUE or FALSE.

a. $\frac{15}{9} \times \frac{5}{3}$

$15 \cdot 3 \stackrel{?}{=} 5 \cdot 9$

$45 = 45$

✓

b. $\frac{7}{3} \times \frac{9}{5}$

$7 \cdot 5 \stackrel{?}{=} 9 \cdot 3$

$35 \neq 27$

✗

c. $\frac{0.8}{0.3} = \frac{0.2}{0.3}$

$0.24 \neq 0.06$

✗

d. $\frac{\frac{6}{7}}{3} = \frac{\frac{10}{7}}{5}$

$\frac{30}{7} = \frac{30}{7}$

$4.29 = 4.29$

✓

6.2 Objective C: Find an Unknown Number in a Proportion.

Ex. 3. Solve each proportion for the given variable. Round the solution where indicated.

a. $\frac{x}{5} = \frac{6}{10}$

$10x = 6 \cdot 5$

$\frac{10x}{10} = \frac{30}{10}$

$x = 3$

b. $\frac{30}{10} = \frac{15}{y}$

$30y = 15 \cdot 10$

$y = 5$

c. $\frac{n}{0.6} = \frac{0.05}{12}$

$12n = 0.05 \cdot 0.6$

$n = 0.0025$

d. Round to the nearest tenth. $\frac{3.2}{0.3} = \frac{x}{1.4}$

$0.3x = 3.2 \cdot 1.4$

$x = 14.9$