

A **proportion** is an equation stating that two ratios (fractions) are equal.

- If the cross products are equal, then the two ratios form a proportion.
- If the cross products are not equal, then the ratios **do not** form a proportion.

Examples. Determine whether each pair of ratios forms a proportion. Use cross products!

1. $\frac{1}{3}$ and $\frac{3}{9}$

2. $\frac{1.2}{4}$ and $\frac{2}{5}$

Independent Practice.

3. $\frac{2}{3}$ and $\frac{8}{12}$

4. $\frac{4}{2}$ and $\frac{18}{7}$

5. $\frac{1.5}{5}$ and $\frac{3}{9}$

6. $\frac{2.1}{3.5}$ and $\frac{3}{7}$

7. $\frac{5.3}{15.9}$ and $\frac{2.7}{8.1}$

8. $\frac{18}{2.4}$ and $\frac{15}{2}$

If a **proportion** contains a *variable*, use cross multiplication to create an equation to solve algebraically

- If a numerator or denominator contains more than one *term*, use the distributive property.

Examples.

1. $\frac{a}{25} = \frac{52}{100}$

2. $\frac{12.5}{m} = \frac{15}{7.5}$

Solving Proportions

1. Write the proportion.
2. Cross multiply to eliminate the fractions and create a new equation.
3. Simplify and solve the equation.

Independent Practice.

3. $\frac{k}{35} = \frac{3}{7}$

4. $\frac{3}{t} = \frac{18}{24}$

5. $\frac{10}{8.4} = \frac{5}{m}$

6. $\frac{p}{6} = \frac{24}{36}$

7. $\frac{2}{15} = \frac{c}{72}$

8. $\frac{2}{9.4} = \frac{0.2}{v}$

9. $\frac{a}{0.28} = \frac{4}{1.4}$

10. $\frac{16}{x+5} = \frac{4}{5}$