

8th Grade Lesson 65

- I can solve conditional proportions that contain mixed numbers.
- I can use proportions to find missing sides of similar triangles.

$$\frac{\frac{4}{9}}{x} = \frac{2\frac{1}{5}}{1\frac{3}{4}}$$

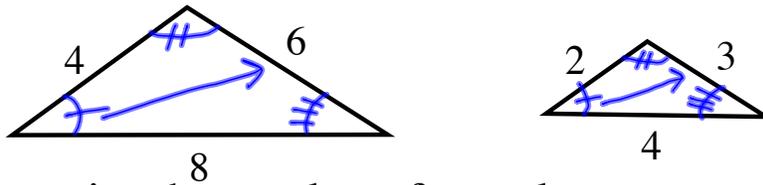
$$\frac{4}{9x} = \frac{11}{47}$$

$$\frac{11}{5} \cdot x = \frac{7}{9} \cdot \frac{7}{4}$$

$$\frac{5}{11} \cdot \frac{11}{5} \cdot x = \frac{7}{9} \cdot \frac{5}{11}$$

$$x = \frac{35}{99}$$

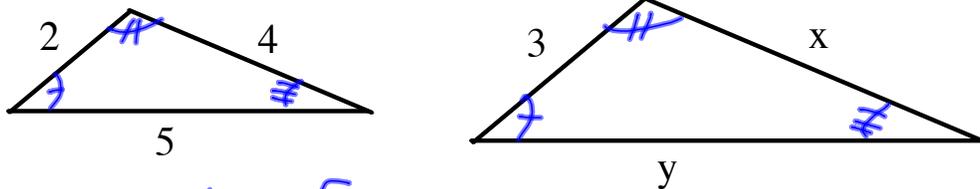
If two triangles have angles with equal measures, the triangles are **similar triangles**.



Sides opposite the angles of equal measure are called **corresponding sides**.

$$\frac{6}{3} = \frac{4}{2} = \frac{8}{4}$$

Corresponding sides of similar triangles all have the same ratio....they are **in proportion**.



$$\frac{2}{3} = \frac{4}{x} = \frac{5}{y}$$

$$\begin{aligned} \frac{2}{3} &= \frac{4}{x} \\ 2x &= 3 \cdot 4 \\ 2x &= 12 \\ \frac{2x}{2} &= \frac{12}{2} \\ x &= 6 \end{aligned}$$

$$\begin{aligned} \frac{2}{3} &= \frac{5}{y} \\ 2y &= 3 \cdot 5 \\ 2y &= 15 \\ \frac{2y}{2} &= \frac{15}{2} \\ y &= \frac{15}{2} \end{aligned}$$

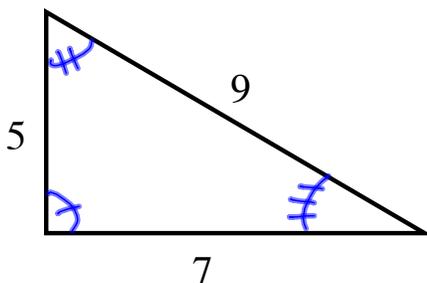
$$\begin{aligned} x &= 6 \\ y &= \frac{15}{2} \end{aligned}$$

$$\frac{1\frac{3}{4}}{\frac{2}{3}} = \frac{5\frac{1}{4}}{x}$$

$$\frac{7}{4}x = \frac{7}{2} \cdot \frac{5}{4}$$

$$\frac{4}{7} \cdot \frac{7}{4}x = \frac{7}{2} \cdot \frac{5}{4}$$

$$x = 2$$



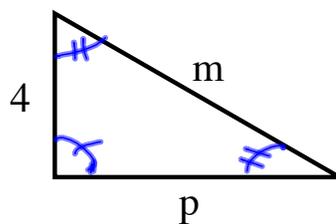
$$\frac{5}{4} = \frac{7}{p} = \frac{9}{m}$$

$$\frac{5}{4} = \frac{7}{p}$$

$$5p = 7 \cdot 4$$

$$\frac{5p}{5} = \frac{28}{5}$$

$$p = \frac{28}{5}$$



$$\frac{5}{4} = \frac{9}{m}$$

$$5m = 9 \cdot 4$$

$$5m = 36$$

$$m = \frac{36}{5}$$

Assignment:

Problem Set 65 #1-4, 6, 10-19