

4.1 Proportions

2 ratios set equal to each other

$$\frac{1}{2} = \frac{4}{8}$$

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

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

$$\frac{1}{5} = \frac{4}{20}$$

Cross Products
are =

$$\frac{1}{4} = \frac{x}{6}$$

$$\frac{1}{4} = \frac{1\frac{1}{2}}{6}$$

$$4x = 1(6)$$

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

$$\frac{4x}{4} = \frac{6}{4}$$

$$x = \frac{6}{4}$$

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

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

$$3x = 2(8)$$

$$\frac{3x}{3} = \frac{16}{3}$$

$$x = \frac{16}{3} = 5\frac{1}{3}$$

$$\frac{18}{20} = \frac{x}{25}$$

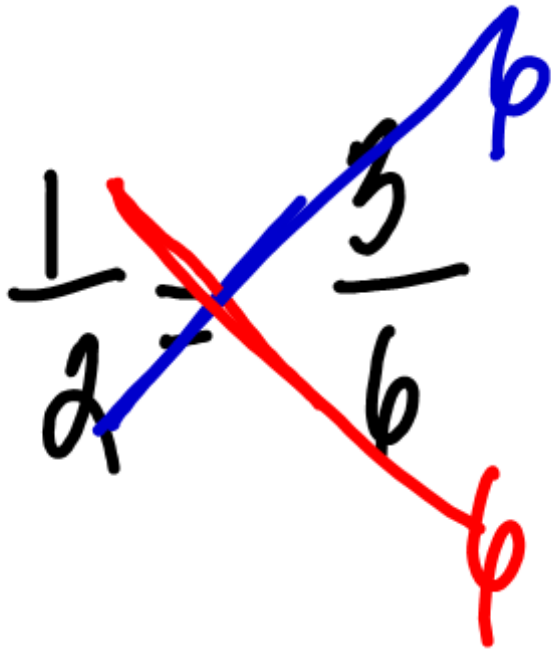
$$\frac{9}{10} = \frac{x}{25}$$

$$10x = 9(25)$$

$$\frac{10x}{10} = \frac{225}{10}$$

$$\frac{18}{20} = \frac{22\frac{1}{2}}{25}$$

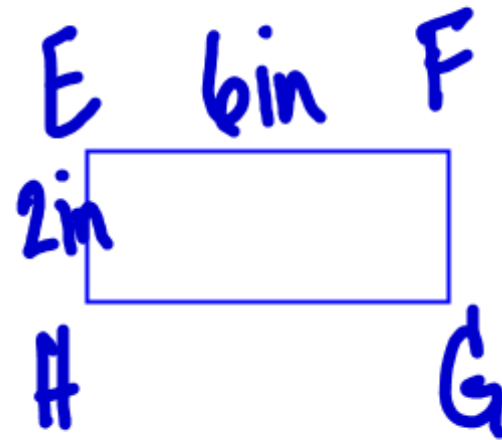
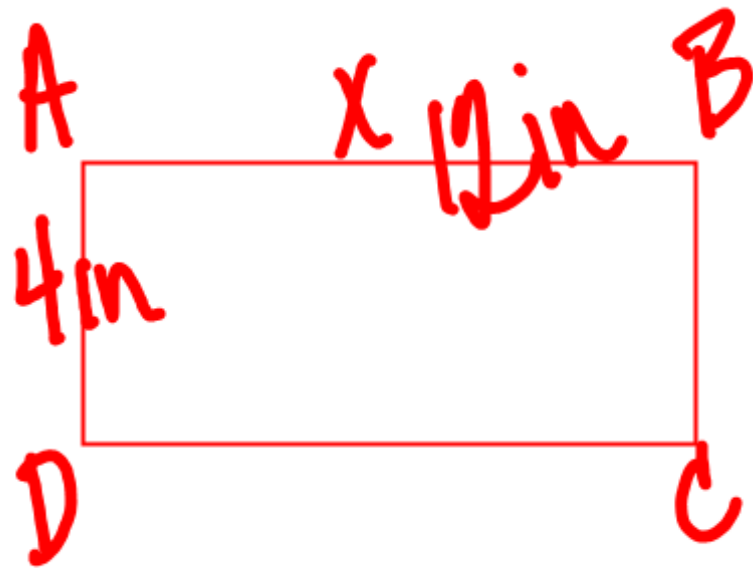
$$x = 22.5$$



$$1:2 = 3:6$$

$$1 \text{ to } 2 = 3 \text{ to } 6$$

The product of
the **means** is
equal to the
product of the
extremes



$$ABCD \sim EFGH$$

Similar polygons : \angle s are \cong
 sides in proportion

$$\frac{15}{9} \stackrel{?}{=} \frac{35}{21}$$

315

315

True

$$\frac{15}{9} = \frac{35}{21}$$

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

$$\frac{24}{3} \stackrel{?}{=} \frac{72}{12}$$

216

~~288~~

$$216 \neq 288$$

$$8 \neq 6$$

Not a
proportion

$$\frac{x}{12} = \frac{21}{63}$$

$$\frac{4}{12} = \frac{21}{63}$$

~~$$\frac{x}{12} = \frac{21}{63}$$~~

$$\frac{x}{12} = \frac{21}{63}$$

$$x = \frac{21 \cdot 12}{63} = \frac{252}{63} = 4$$

$$63x = 12(21)$$

$$\frac{63x}{63} = \frac{252}{63}$$

$$x = 4$$

p168

$$16 - 48 \times 4$$