

SOLVING  
ALGEBRAIC  
PROPORTIONS

SOLVING  
PROPORTIONS

SIMILAR  
FIGURES

WRITING  
PROPORTIONS

EXAMPLE 1:

$$\frac{8}{x} = \frac{6}{15}$$

EXAMPLE 2:

$$\frac{x}{20} = \frac{8}{4}$$

EXAMPLE 3:

$$\frac{3}{x} = \frac{2}{x-6}$$

EXAMPLE 4:

$$\frac{x-1}{3} = \frac{2x+1}{9}$$

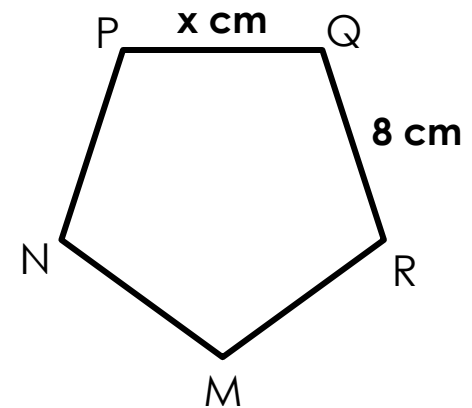
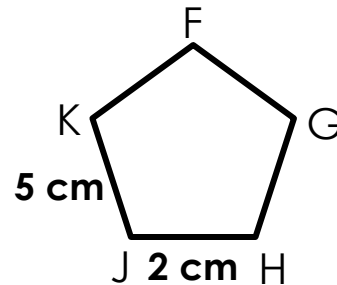
EXAMPLE 5:

A utility worker is 5.5 feet tall and is casting a shadow 4 feet long. At the same time, a nearby utility pole casts a shadow 20 feet long. Write and solve a proportion to find the height of the utility pole.

EXAMPLE 6:

Find the value of  $x$ .

$FGHJK \sim MNPQR$



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### EXAMPLE 1:

$$\frac{8}{x} = \frac{6}{15}$$

$$6x = 8(15)$$

$$6x = 120$$

$$x = 20$$

### EXAMPLE 2:

$$\frac{x}{20} = \frac{8}{4}$$

$$4x = 8(20)$$

$$4x = 160$$

$$x = 40$$

### EXAMPLE 3:

$$\frac{3}{x} = \frac{2}{x-6}$$

$$2x = 3(x-6)$$

$$2x = 3x - 18$$

$$-x = -18$$

$$x = 18$$

### EXAMPLE 4:

$$\frac{x-1}{3} = \frac{2x+1}{9}$$

$$9(x-1) = 3(2x+1)$$

$$9x - 9 = 6x + 3$$

$$3x - 9 = 3$$

$$3x = 12$$

$$x = 4$$

### EXAMPLE 5:

A utility worker is 5.5 feet tall and is casting a shadow 4 feet long. At the same time, a nearby utility pole casts a shadow 20 feet long. Write and solve a proportion to find the height of the utility pole.

$$\frac{5.5\text{ft}}{4\text{ft}} = \frac{x}{20\text{ft}}$$

$$4x = 20(5.5)$$

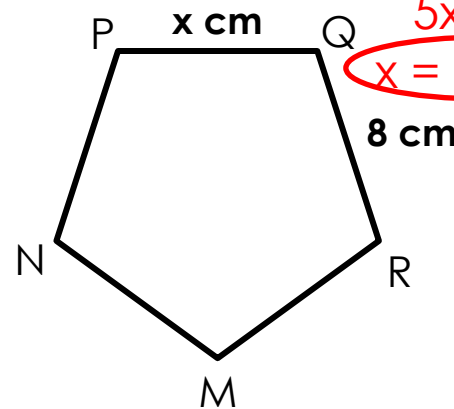
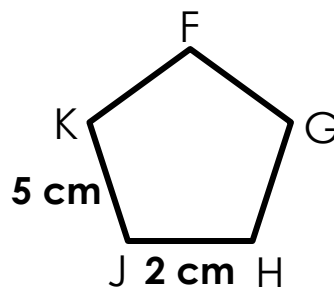
$$4x = 110$$

$$x = 27.5$$

### EXAMPLE 6:

Find the value of  $x$ .  $\frac{5\text{ cm}}{2\text{ cm}} = \frac{8\text{ cm}}{x\text{ cm}}$

$$FGHJK \sim MNPQR$$



$$5x = 2(8)$$

$$5x = 16$$

$$x = 3.2\text{ cm}$$

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