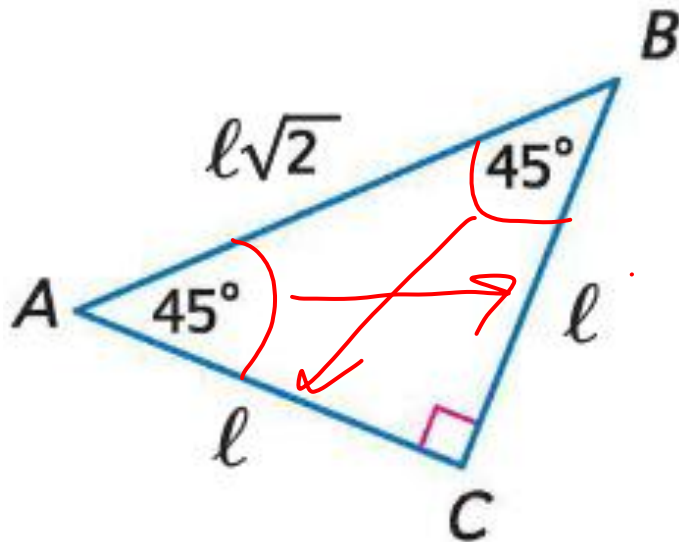




Special Right
Triangles

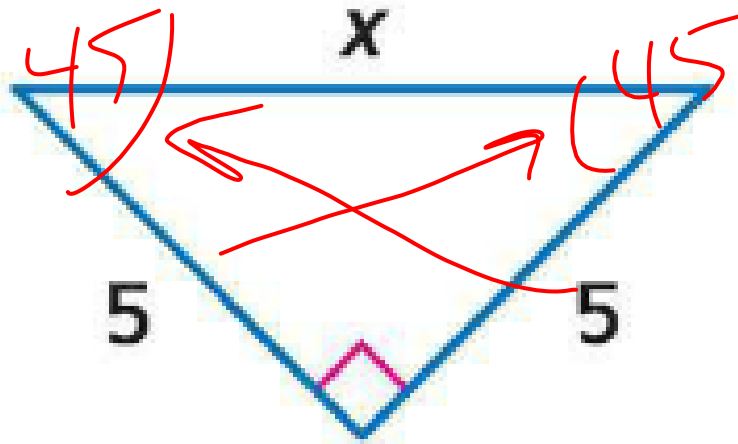
45-45-90 Triangle Theorem

- In a 45-45-90 triangle, the legs l are congruent and the length of the hypotenuse h is $\sqrt{2}$ times the length of a leg.



Examples

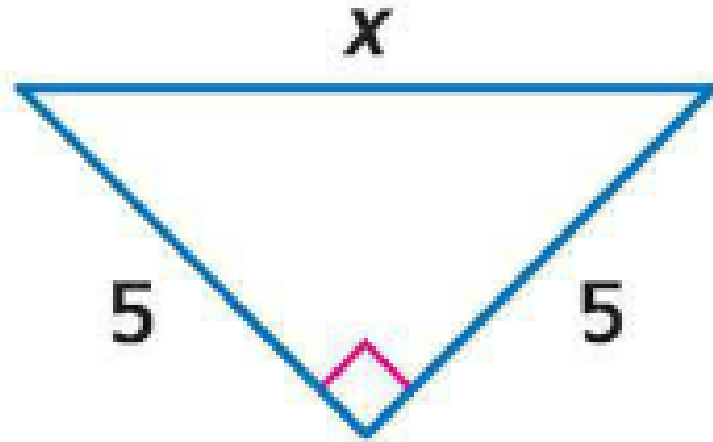
- Find x. $5\sqrt{2}$



Examples

● Find x .

● $x = 5\sqrt{2}$



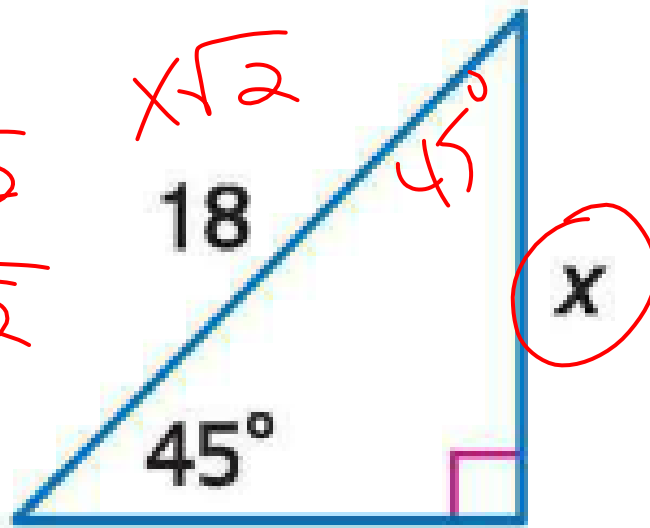
Examples

● Find x.

$$\frac{x\sqrt{2}}{\sqrt{2}} = \frac{18\sqrt{2}}{\sqrt{2}}$$

$$= \frac{18\sqrt{2}}{2}$$

$$= 9\sqrt{2}$$



$$18 \frac{\sqrt{2}}{2}$$

$$9\sqrt{2}$$

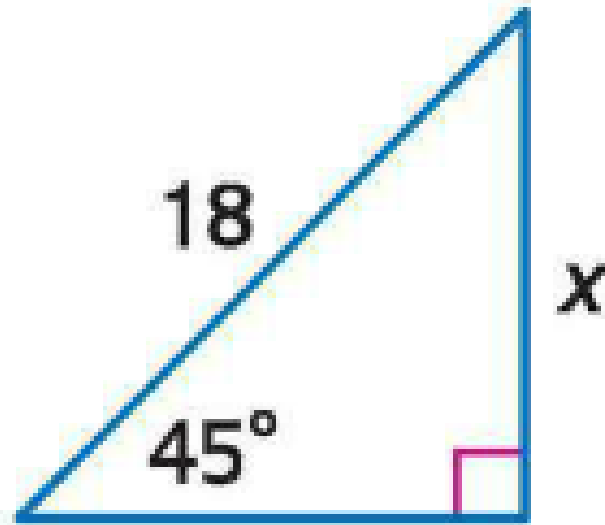
Examples

- Find x .

- $18 = x\sqrt{2}$

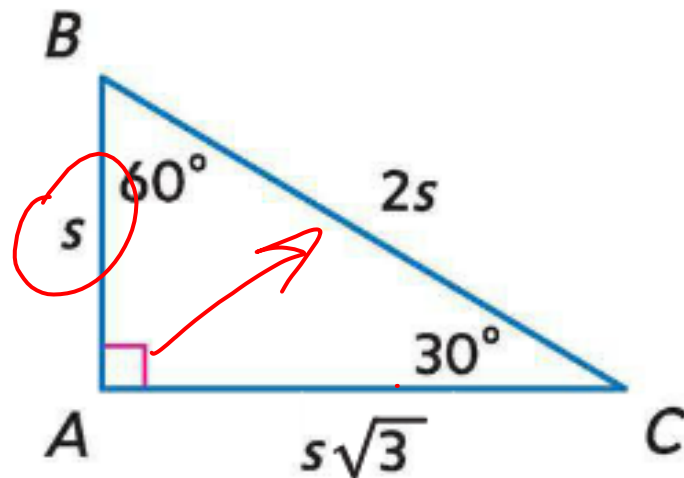
- $x = 18/\sqrt{2}$

- $x = 9\sqrt{2}$



30-60-90 Triangle Theorem

- In a 30-60-90 triangle, the length of the hypotenuse is 2 times the length of the shorter leg and the longer leg is $\sqrt{3}$ times the length of the shorter leg.



Examples

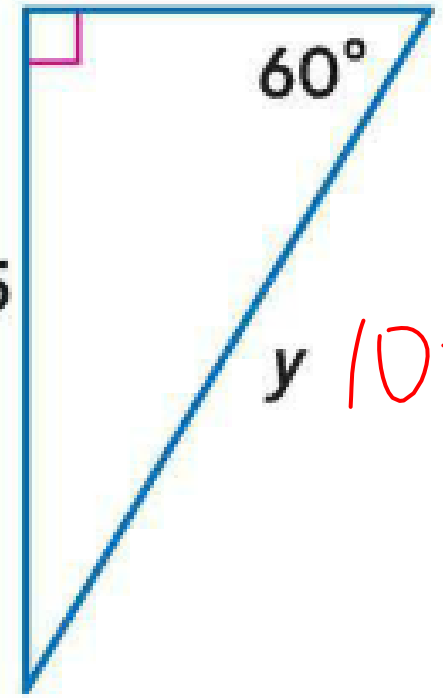
- Find x and y .

$$\frac{\sqrt{3}}{\sqrt{3}} \cdot \frac{15}{\sqrt{3}} = \frac{x\sqrt{3}}{\sqrt{3}}$$
$$\frac{15\sqrt{3}}{3}$$
$$5\sqrt{3}$$

$$\frac{\sqrt{3}}{3}$$

$$x\sqrt{3}$$

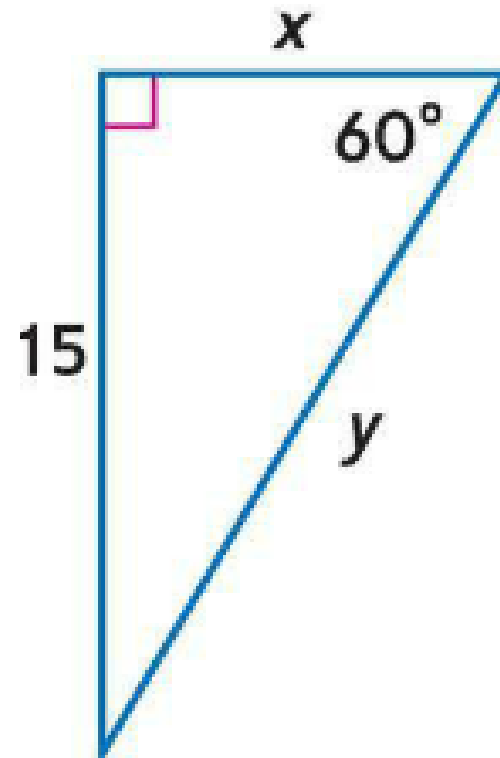
$$5\sqrt{3}$$
$$x$$



$$y = 10\sqrt{3}$$

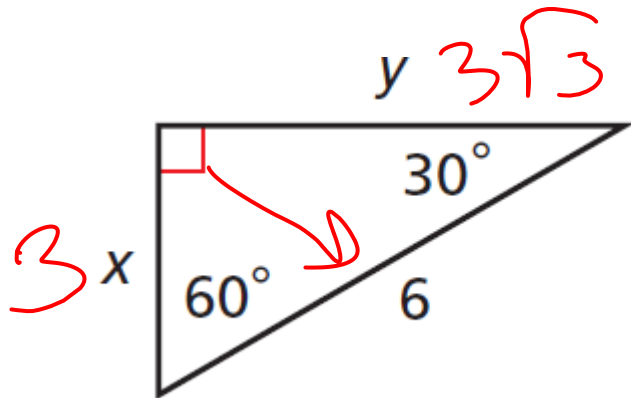
Examples

- Find x and y .
- $15 = x\sqrt{3}$
- $x = 15/\sqrt{3}$
- $x = 5\sqrt{3}$
- $y = 2x$
- $y = 2 * 5\sqrt{3} = 10\sqrt{3}$



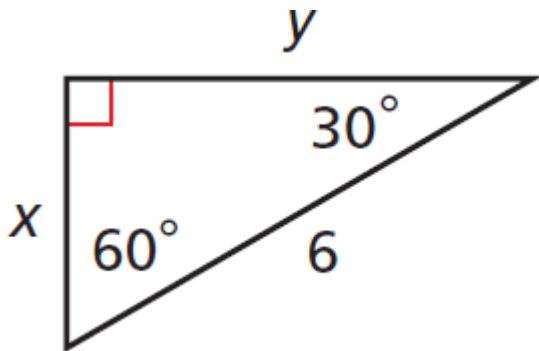
Examples

- Find the values of x and y . Give your answers in simplest radical form.



Examples

- Find the values of x and y . Give your answers in simplest radical form.



$$6 = 2x$$

$$x = 3$$

$$y = x\sqrt{3}$$

$$y = 3\sqrt{3}$$