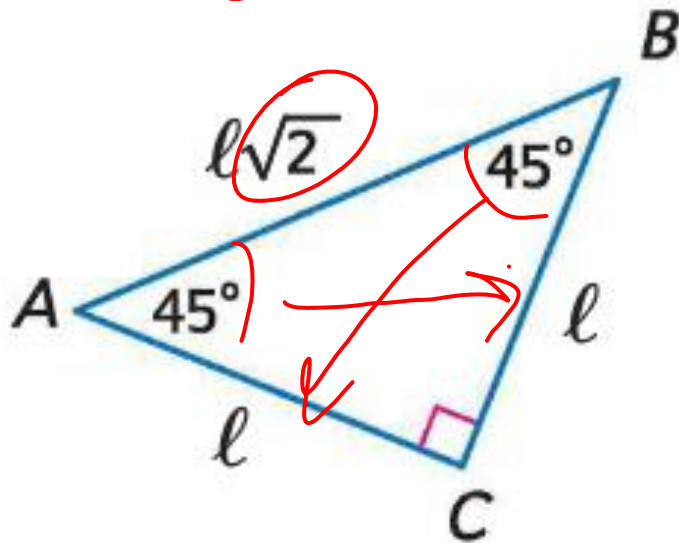




# Special Right Triangles

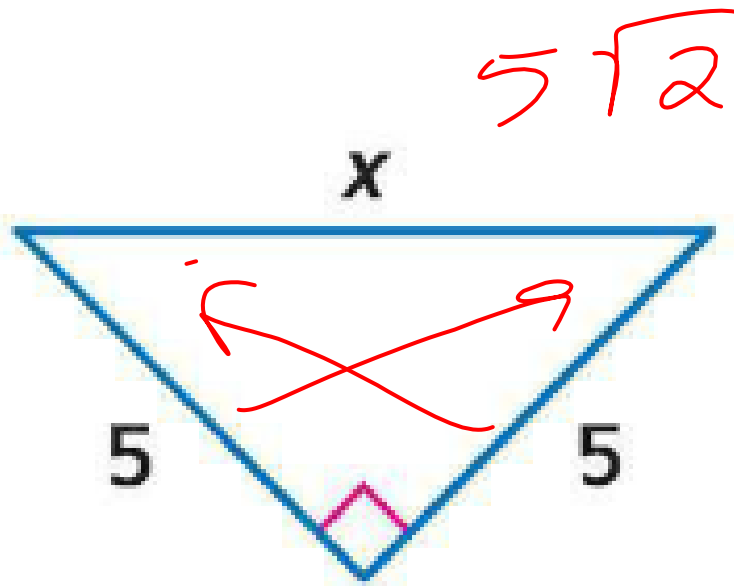
# 45-45-90 Triangle Theorem

- 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

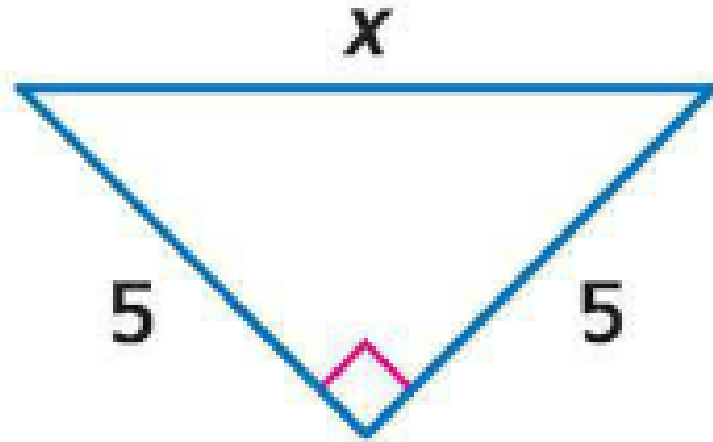
- Find  $x$ .



# Examples

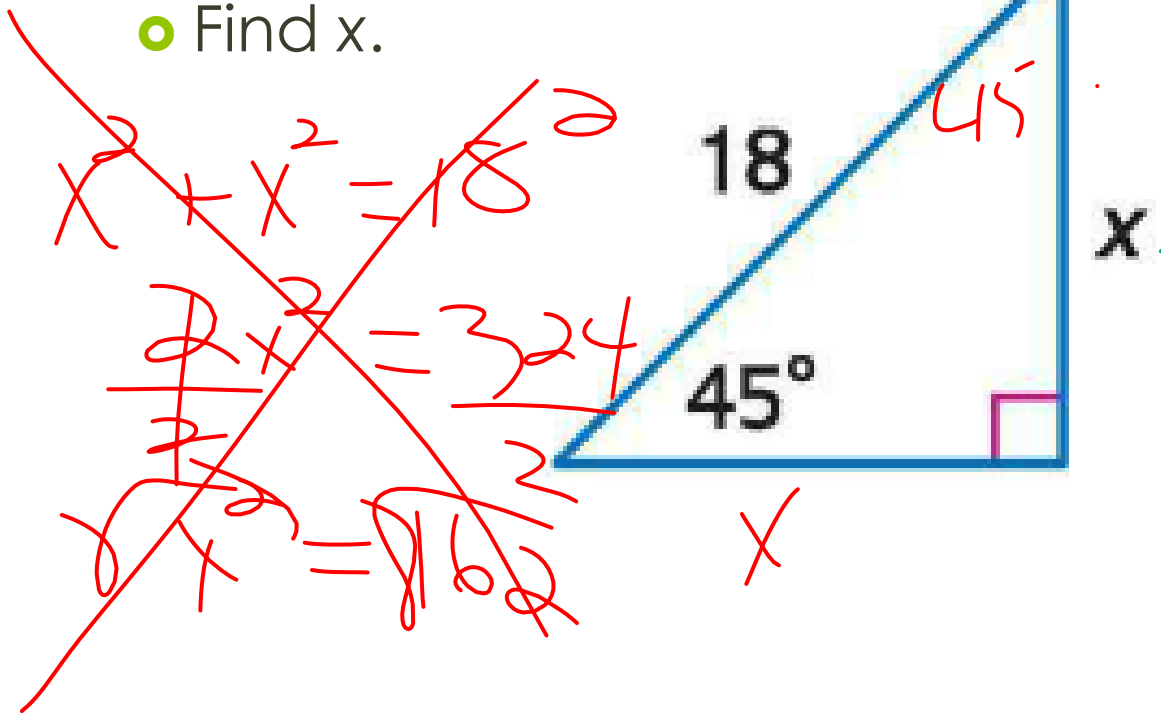
- Find  $x$ .

- $x = 5\sqrt{2}$



# Examples

- Find x.



$$\begin{aligned}x\sqrt{2} &= 18 \\x &= \frac{18}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} \\&= \frac{18\sqrt{2}}{2} \\&= 9\sqrt{2}\end{aligned}$$

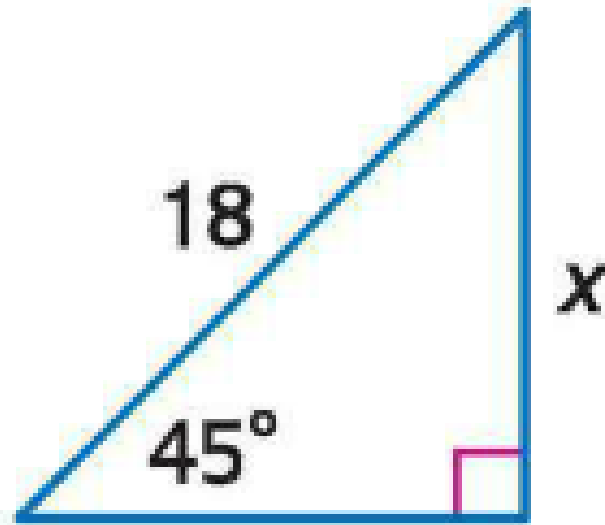
# Examples

- Find  $x$ .

- $18 = x\sqrt{2}$

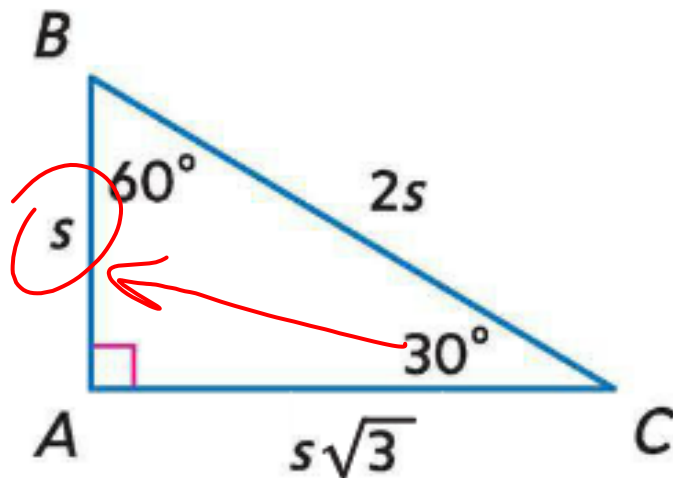
- $x = 18/\sqrt{2}$

- $x = 9\sqrt{2}$



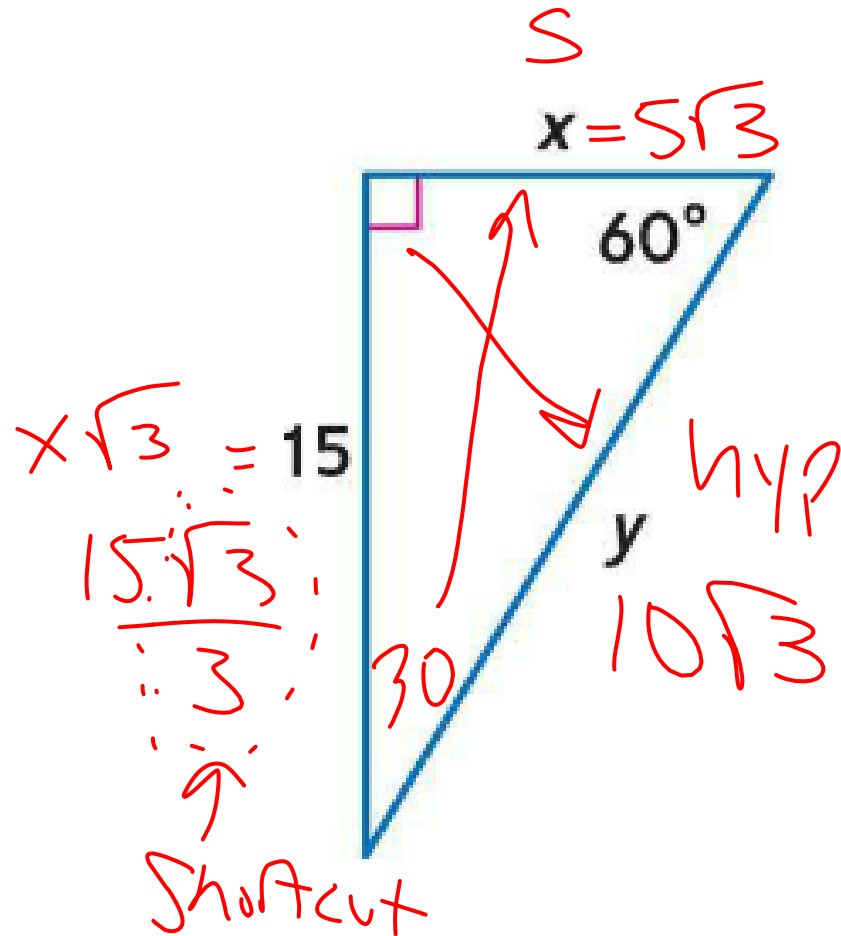
# 30-60-90 Triangle Theorem

- 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.



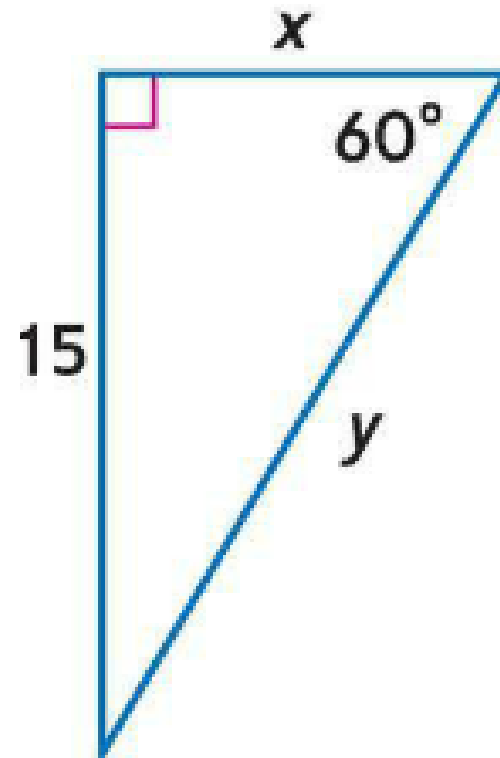
# Examples

- Find  $x$  and  $y$ .



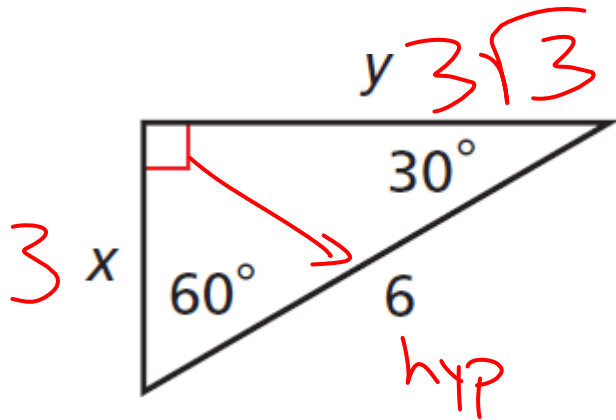
# Examples

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



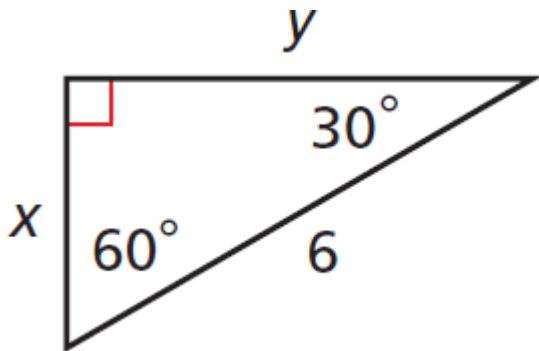
# Examples

- 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.



$$6 = 2x$$

$$x = 3$$

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

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