

5-1 Special Right Triangles

1. 45°- 45° - 90° Triangle Theorem: The length of the hypotenuse is  $\sqrt{2}$  times the length of a leg.

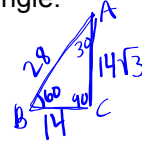


2. 30°- 60°- 90° Triangle Theorem: The length of the hypotenuse is twice the length of the shorter leg, and the length of the longer leg is  $\sqrt{3}$  times the length of the shorter side.



3. Find the missing measures.

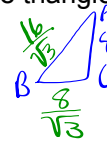
ex) If BC = 14 inches, find AC if triangle ABC is a 30°-60°-90° triangle.



ex) Using the same triangle, find BC if AC = 8 inches.

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

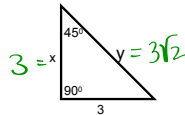
$$\frac{8}{\sqrt{3}} = x$$



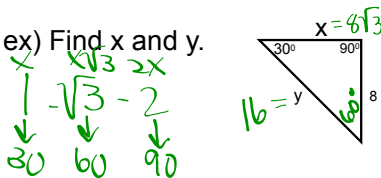
$$\frac{8}{\sqrt{3}} = \frac{x\sqrt{3}}{\sqrt{3}}$$

4. Find the missing measures.

ex) Find x and y.

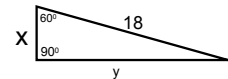


ex) Find x and y.

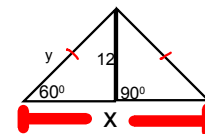


5. Find the missing measures.

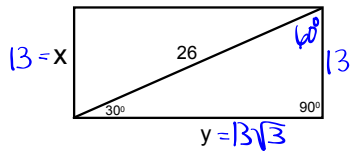
ex) Find x and y.



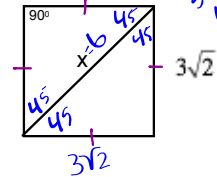
ex) Find x and y.



6. Find x and y.

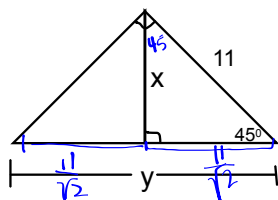


7. Find x.



30-60-90  
 $x \quad x\sqrt{3} \quad 2x$   
 45-45-90  
 $x \quad x \quad x\sqrt{2}$

8. Find x and y.



$$11 = \frac{x\sqrt{2}}{\frac{1}{\sqrt{2}} \cdot \frac{1}{\sqrt{2}}}$$

$$\frac{11}{\sqrt{2}} + \frac{11}{\sqrt{2}} = \frac{22}{\sqrt{2}}$$