HW

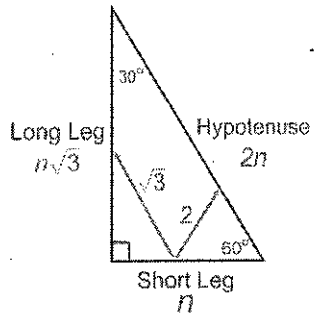
Key

Trigonometry Prerequisite: Special Right Triangles

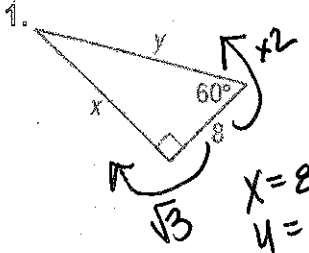
Special Right Triangles: 30° - 60° - 90°

Hypotenuse = 2 * Short Leg

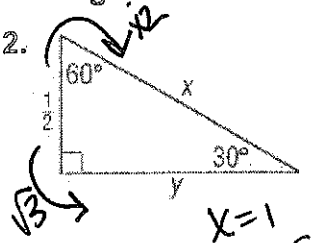
Long Leg = Short Leg * $\sqrt{3}$



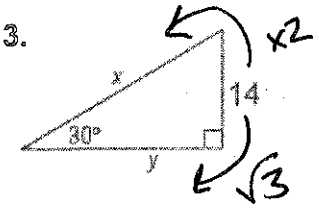
Find the value of x and y in each triangle.

1. 

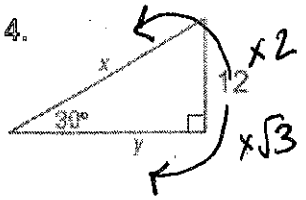
$x = 8\sqrt{3}$
$y = 16$

2. 

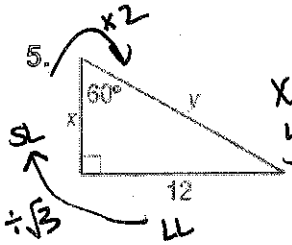
$x = 1$
$y = \frac{\sqrt{3}}{2}$

3. 

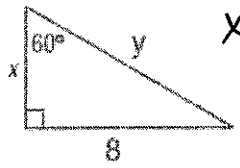
$x = 28$
$y = 14\sqrt{3}$

4. 

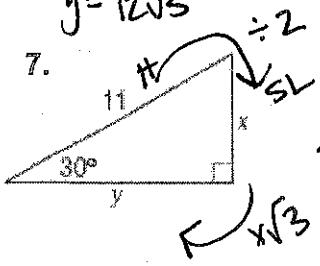
$x = 24$
$y = 12\sqrt{3}$

5. 

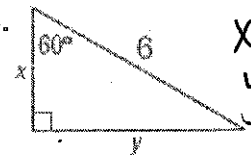
$x = 4\sqrt{3}$
$y = 8\sqrt{3}$

6. 

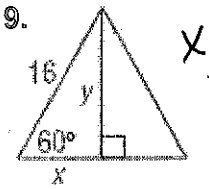
$x = \frac{8\sqrt{3}}{3}$
$y = \frac{16\sqrt{3}}{3}$

7. 

$x = \frac{11}{2}$
$y = \frac{11\sqrt{3}}{2}$

8. 

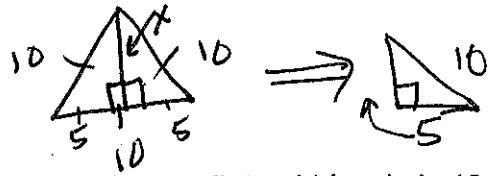
$x = 3$
$y = 3\sqrt{3}$

9. 

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

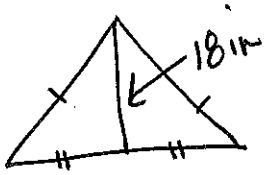
Sketch the figure that is described. Then, find the requested measure.

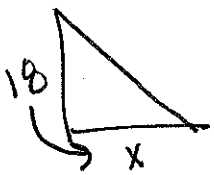
10. An equilateral triangle has a side length of 10 inches. Find the length of the triangles altitude. (Height)



$x = 5\sqrt{3}$ in

11. The altitude of an equilateral triangle is 18 inches. Find the length of a side.





$\frac{18}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{18\sqrt{3}}{3}$

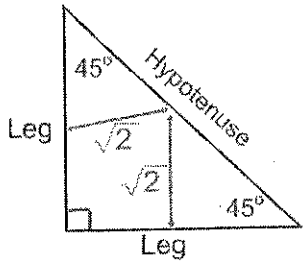
$x = 6\sqrt{3} \rightarrow 2(6\sqrt{3}) = 12\sqrt{3}$

Trigonometry Prerequisite: Special Right Triangles

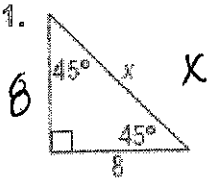
Special Right Triangles: 45° - 45° - 90°

Hypotenuse = Leg * $\sqrt{2}$ $\sqrt{2}$

$\text{Leg} = \frac{\text{hypotenuse}}{\sqrt{2}}$



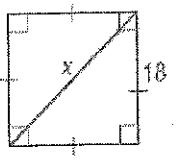
Find the value of x in each triangle.

1. 

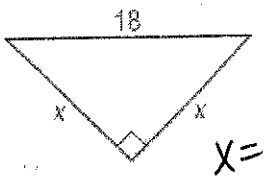
$x = 8\sqrt{2}$

2. 

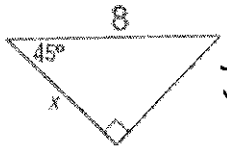
$x = 14$
$y = 14\sqrt{2}$

3. 

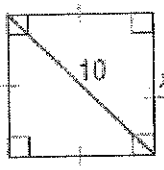
$x = 18\sqrt{2}$

4. 

$x = \frac{18}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$
$x = 9\sqrt{2}$

5. 

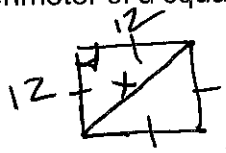
$\frac{8}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$
$x = 4\sqrt{2}$

6. 

$\frac{10}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$
$x = 5\sqrt{2}$

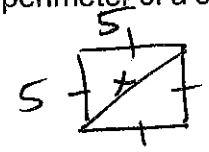
Sketch the figure that is described. Find the requested measure.

7. The perimeter of a square is 48 meters. Find the length of a diagonal.



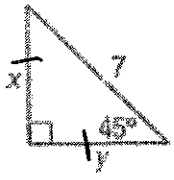
$P = 4s$
$48 = 4s$
$s = 12$
$x = 12\sqrt{2}$

8. The perimeter of a square is 20 cm. Find the length of a diagonal.

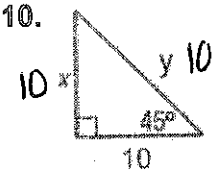


$x = 5\sqrt{2}$

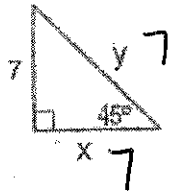
Find the value of x and y in each figure.

9. 

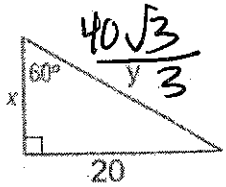
$\frac{7\sqrt{2}}{2}$

10. 

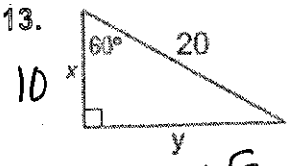
$y = 10\sqrt{2}$

11. 

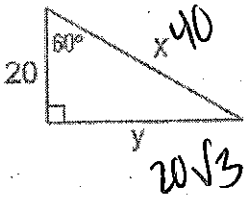
$y = 7\sqrt{2}$

12. 

$\frac{20\sqrt{3}}{3}$
$\frac{40\sqrt{3}}{3}$

13. 

$10\sqrt{3}$

14. 

$20\sqrt{3}$