

7-3 Practice

Special Right Triangles

$45^\circ-45^\circ-90^\circ$

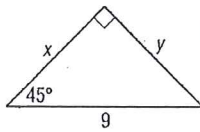
$1:1:\sqrt{2}$

$30^\circ-60^\circ-90^\circ$

$1:\sqrt{3}:2$

Find x and y .

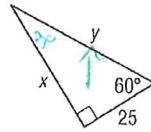
1.



$\frac{9}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

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

2.

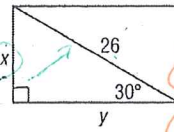


$y = 2 \cdot 25$

$y = 50$

$x = 25 \cdot \sqrt{3}$

3.

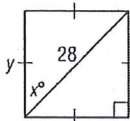


$x = \frac{26}{2}$

$x = 13$

$y = 13 \cdot \sqrt{3}$

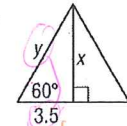
4.



$y = \frac{28}{\sqrt{2}}$

$x = 45^\circ$
 $y = 14\sqrt{2}$

5.

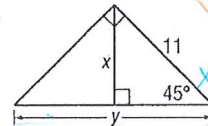


$y = 2 \cdot 3.5$

$y = 7$

$x = 3.5 \cdot \sqrt{3}$

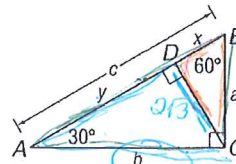
6.



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

$\frac{22\sqrt{2}}{2}$

For Exercises 7-9, use the figure at the right.



7. If $a = 4\sqrt{3}$, find b and c .

$c = 4\sqrt{3} \cdot 2 = 8\sqrt{3}$
 $b = 4\sqrt{3} \cdot \sqrt{3} = 4 \cdot 3 = 12$

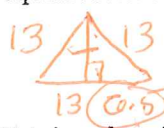
8. If $x = 3\sqrt{3}$, find a and CD .

$a = 3\sqrt{3} \cdot 2 = 6\sqrt{3}$
 $CD = 3\sqrt{3} \cdot \sqrt{3} = 3 \cdot 3 = 9$

9. If $a = 4$, find CD , b , and y .

$b = 4 \cdot \sqrt{3} = 4\sqrt{3}$
 $CD = \frac{4}{2} \cdot \sqrt{3} = 2\sqrt{3}$
 $y = 2\sqrt{3} \cdot \sqrt{3} = 2 \cdot 3 = 6$

10. The perimeter of an equilateral triangle is 39 centimeters. Find the length of an altitude of the triangle.



6.5

11. $\triangle MIP$ is a $30^\circ-60^\circ-90^\circ$ triangle with right angle at I , and \overline{IP} the longer leg. Find the coordinates of M in Quadrant I for $I(3, 3)$ and $P(12, 3)$.

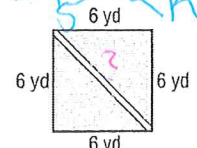
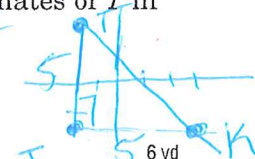
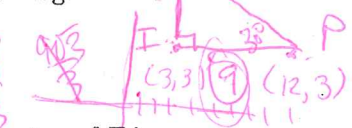
$(3, 3 + 3\sqrt{3})$

$3\sqrt{3}$

12. $\triangle TJK$ is a $45^\circ-45^\circ-90^\circ$ triangle with right angle at J . Find the coordinates of T in Quadrant II for $J(-2, -3)$ and $K(3, -3)$.

$J(-2, -3)$
 $T(-2, 2)$

13. **BOTANICAL GARDENS** One of the displays at a botanical garden is an herb garden planted in the shape of a square. The square measures 6 yards on each side. Visitors can view the herbs from a diagonal pathway through the garden. How long is the pathway?



$6\sqrt{2}$