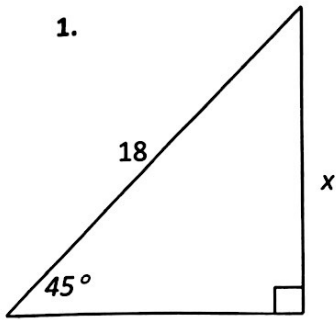


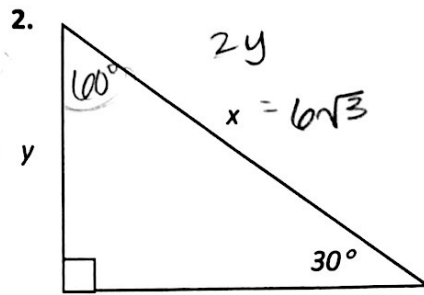
Solve for the missing sides in each of the given triangles using the relationships for special right triangles. Leave all answers in terms of radicals.



$$leg = \frac{y}{2} = \frac{18\sqrt{2}}{2} = 9\sqrt{2}$$

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

$$y = \underline{9\sqrt{2}}$$



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

$$(3\sqrt{3})(2) = 6\sqrt{3}$$

$$x = \underline{6\sqrt{3}}$$

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

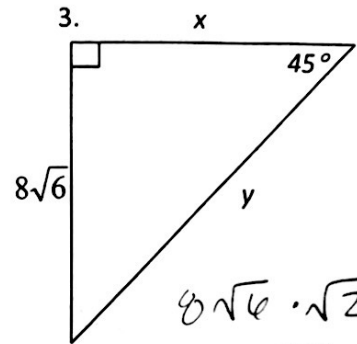
$$2y = x = 6\sqrt{3}$$

$$y\sqrt{3} = 9$$

$$y = \frac{9\sqrt{3}}{\sqrt{3} \cdot \sqrt{3}}$$

$$y = \frac{9\sqrt{3}}{3}$$

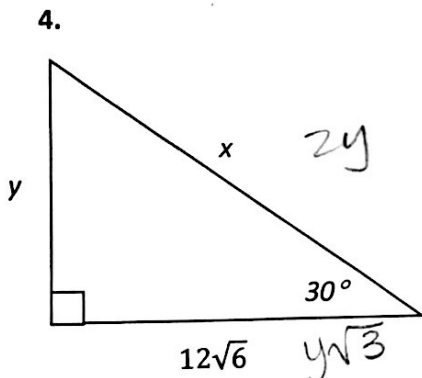
$$y = 3\sqrt{3}$$



$$8\sqrt{6} \cdot \sqrt{2} = 8\sqrt{12} = 8 \cdot 2\sqrt{3} = 16\sqrt{3}$$

$$x = \underline{8\sqrt{6}}$$

$$y = \underline{16\sqrt{3}}$$

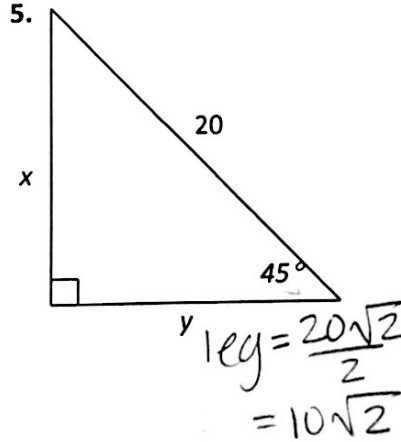


$$\frac{y\sqrt{3}}{\sqrt{3}} = \frac{12\sqrt{6}}{\sqrt{3}}$$

$$x = \underline{24\sqrt{2}}$$

$$y = \underline{12\sqrt{2}}$$

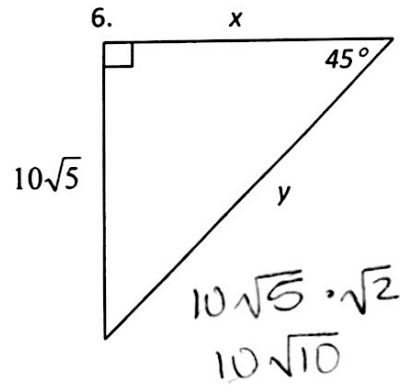
$$12\sqrt{2} \cdot 2 = 24\sqrt{2}$$



$$leg = \frac{20\sqrt{2}}{2} = 10\sqrt{2}$$

$$x = \underline{10\sqrt{2}}$$

$$y = \underline{10\sqrt{2}}$$

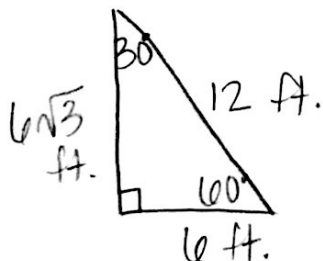


$$10\sqrt{5} \cdot \sqrt{2} = 10\sqrt{10}$$

$$x = \underline{10\sqrt{5}}$$

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

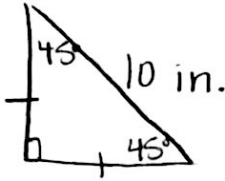
7. In a 30°-60°-90° triangle, the shorter leg is 6 ft long. Find the length of the other two legs.



Longer Leg = 6\sqrt{3} ft.

Hypotenuse = 12 ft.

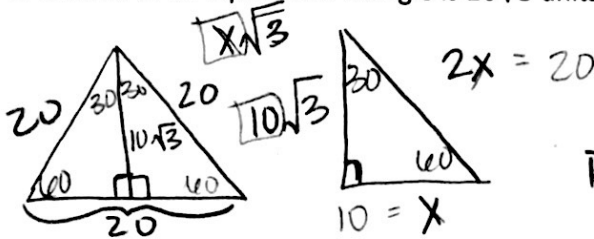
8. The hypotenuse of an isosceles right triangle is 10 inches. Find the length of the isosceles right triangle.



$$\text{leg} = \frac{10\sqrt{2}}{2} = 5\sqrt{2}$$

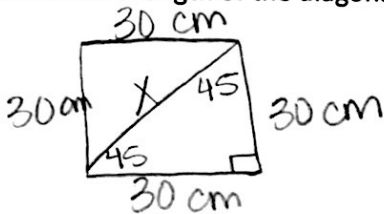
Length of the Side = $5\sqrt{2}$ in.

9. An altitude of an equilateral triangle is $10\sqrt{3}$ units. What is the perimeter of the equilateral triangle?



$2x = 20$
 $10 = x$
 $P = 20 + 20 + 20 = 60$
 Perimeter = 60 units

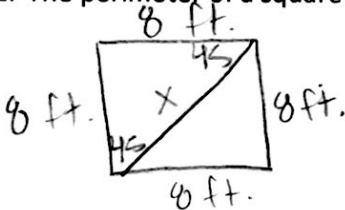
10. Find the length of the diagonal of a square that has sides of length 30cm.



$$x = 30\sqrt{2} \text{ cm}$$

Side Length = $30\sqrt{2}$ cm.

11. The perimeter of a square is 32 feet. Find the length of one of the diagonals.

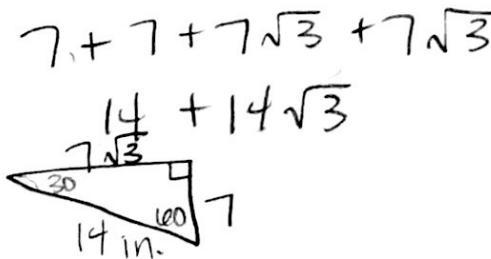
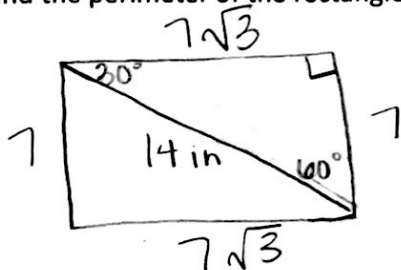


$$32 \div 4 = 8$$

$$x = 8\sqrt{2}$$

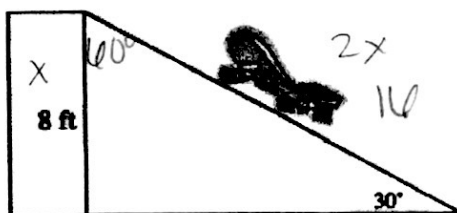
Length of the diagonal = $8\sqrt{2}$ ft.

12. The diagonal of a rectangle splits the rectangle into two $30^\circ - 60^\circ - 90^\circ$ triangles. If the diagonal is 14 inches, find the perimeter of the rectangle.



Perimeter = $14 + 14\sqrt{3}$ m

13. Jeremy is going to show off his skateboarding ability to his Math 2 class. He has a skate board ramp that must be set-up to rise from the ground 30° . If the height from the ground to the platform is 8ft, how far is the ramp from the platform? How long is the ramp up to the top of the platform?



Distance from the platform = $8\sqrt{3}$ ft.

$$x\sqrt{3}$$

$$8\sqrt{3}$$

Length of the ramp = 16 ft.