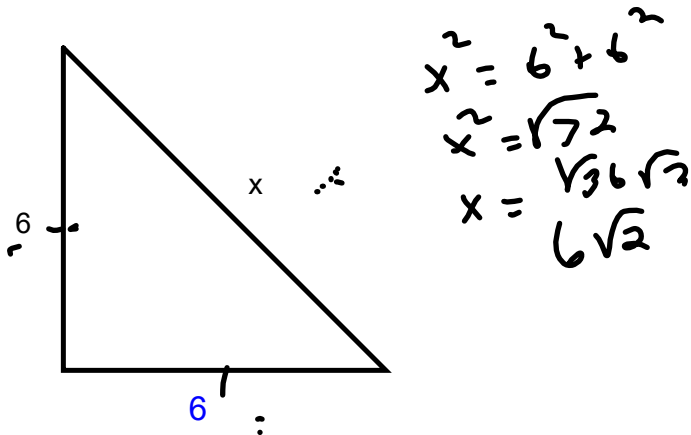
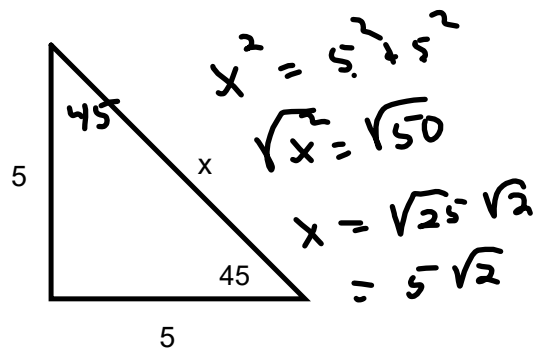
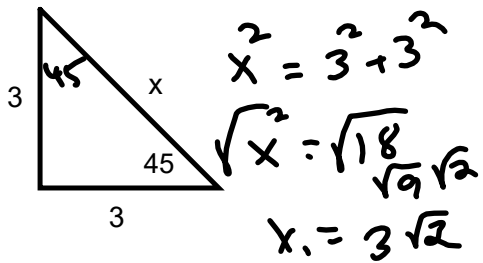


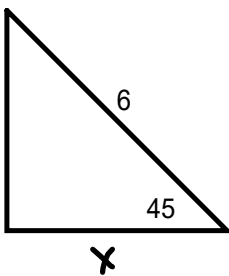
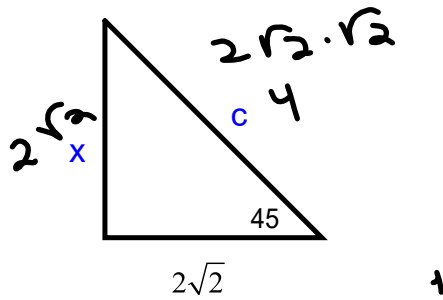
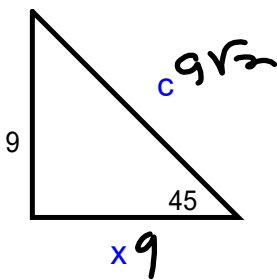
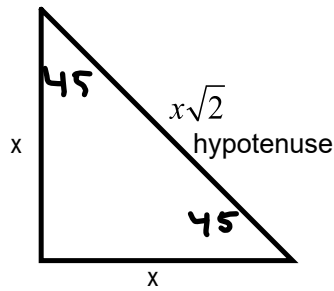
Section 8-3  
Special Right Triangles

Find the value of x in each right triangle



45-45-90 triangles

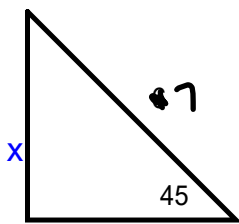
hypotenuse =  $x\sqrt{2}$



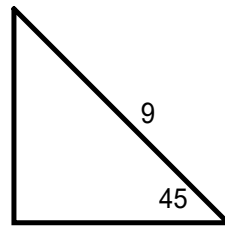
$$x \frac{\sqrt{2}}{\sqrt{2}} = \frac{6}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{6\sqrt{2}}{2} = 3\sqrt{2}$$

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

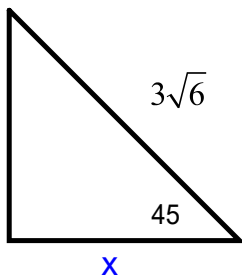
$$\frac{4}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{4\sqrt{3}}{3}$$



$$\frac{x\sqrt{2}}{\sqrt{2}} = \frac{7}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{7\sqrt{2}}{2}$$



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



$$\frac{x\sqrt{2}}{\sqrt{2}} = \frac{3\sqrt{6}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{3\sqrt{12}}{2} = \frac{6\sqrt{3}}{2} = 3\sqrt{3}$$

$$\frac{3\sqrt{6}}{\sqrt{2}} = 3\sqrt{3}$$

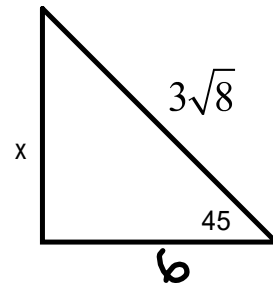
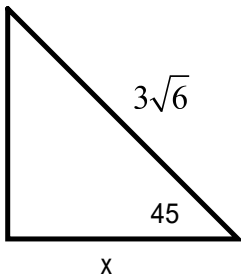
Rationalize the Denominator

$$\frac{3}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{3\sqrt{5}}{5}$$

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

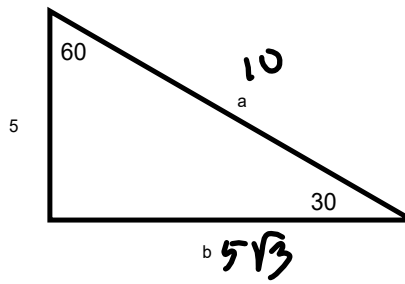
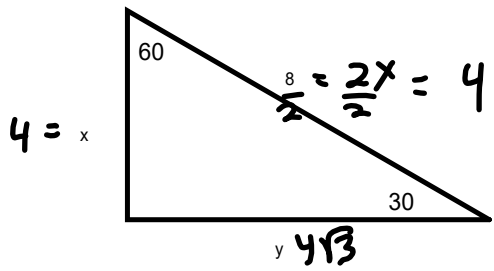
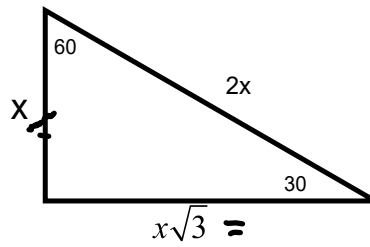
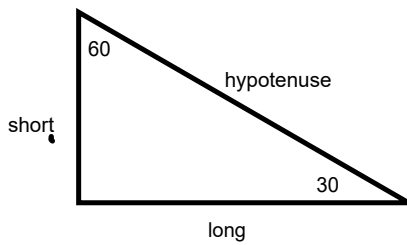
$$\frac{3\sqrt{7}}{\sqrt{8}} \cdot \frac{\sqrt{8}}{\sqrt{8}} = \frac{3\sqrt{56}}{8}$$

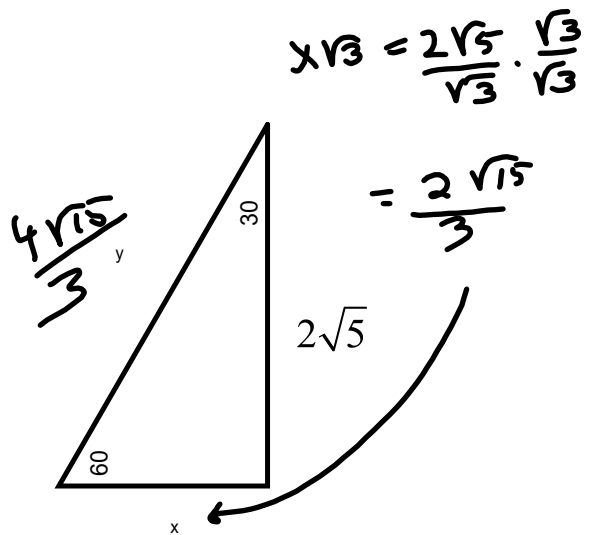
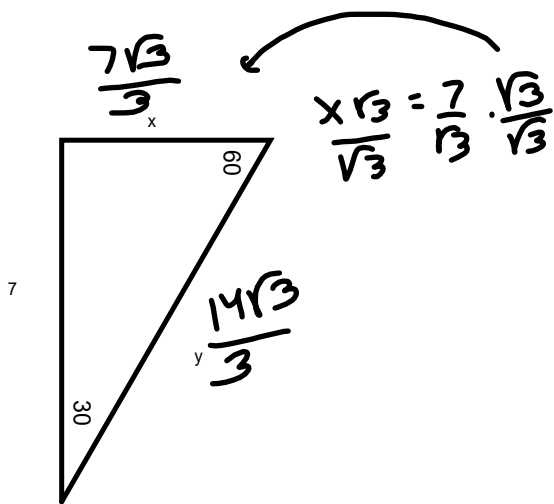
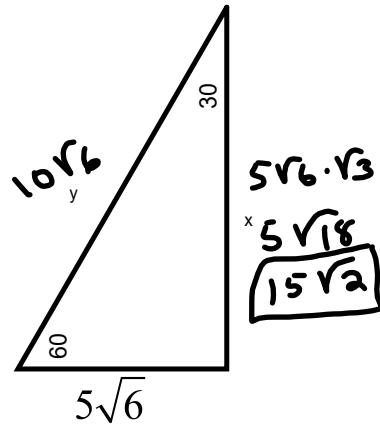
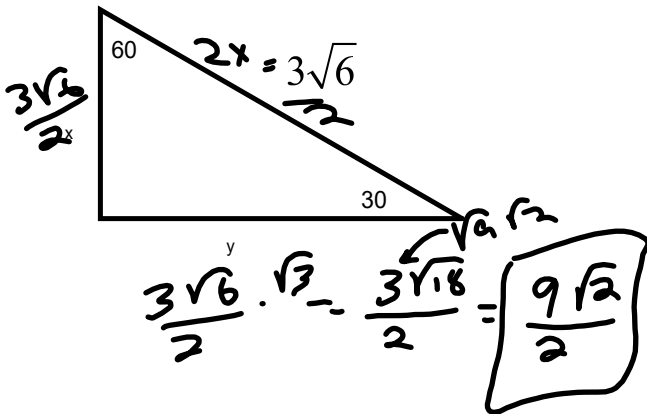
$$\frac{3 \cdot 2\sqrt{14}}{\cancel{8}4} = \frac{3\sqrt{14}}{4}$$



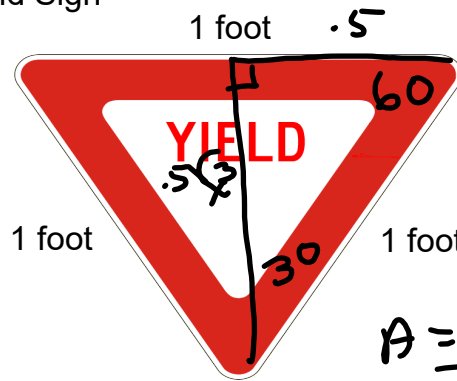
$$x \frac{\sqrt{2}}{\sqrt{2}} = \frac{3\sqrt{8}}{\sqrt{2}} = 3\sqrt{4} = 3 \cdot 2 = 6$$

30-60-90 Triangles



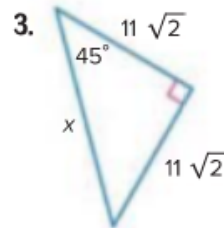
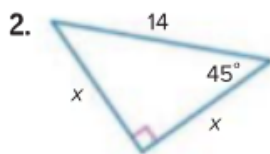
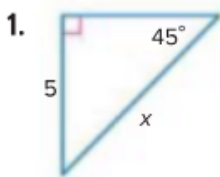


Find the area of the Yield Sign

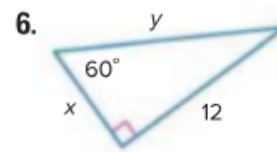
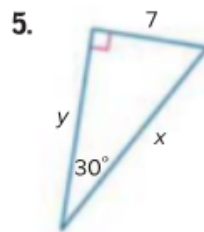
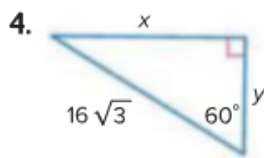


$$A = \frac{1(.5\sqrt{3})}{2} = .43 \text{ ft}^2$$

Find  $x$ .



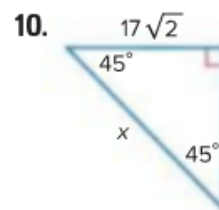
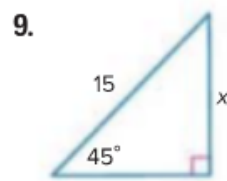
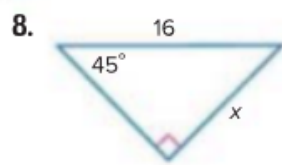
Find  $x$  and  $y$ .



7. **ART** Paulo is mailing an engraved plaque that is  $3\frac{1}{4}$  inches high to the winner of a chess tournament. He has a mailer that is a triangular prism with 4-inch equilateral triangle bases as shown in the diagram. Will the plaque fit through the opening of the mailer? Explain.

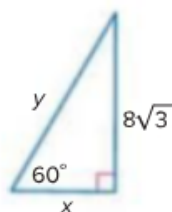




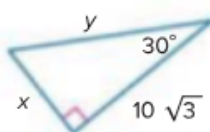


Find  $x$  and  $y$ .

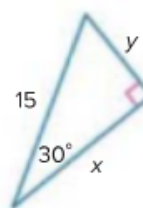
18.



19.



20.



24. An equilateral triangle has an altitude length of 18 feet. Determine the length of a side of the triangle.
25. Find the length of the side of an equilateral triangle that has an altitude length of 24 feet.