Honors Geometry

Notes Section 7.4

Special Right Triangles

THEOREM 7.8 45°-45°-90° Triangle Theorem

In a 45°-45°-90° triangle, the hypotenuse is $\sqrt{2}$ times as long as each leg.

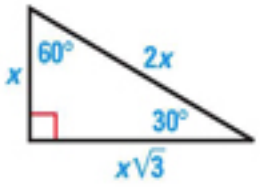
hypotenuse = leg • $\sqrt{2}$

THEOREM 7.9 30°-60°-90° Triangle Theorem

In a 30°-60°-90° triangle, the hypotenuse is twice as long as the shorter leg, and the longer leg is $\sqrt{3}$ times as long as the shorter leg.

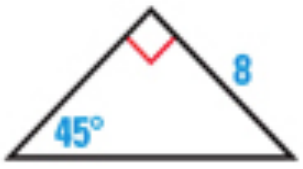
hypotenuse = 2 • shorter leg

longer leg = shorter leg • $\sqrt{3}$



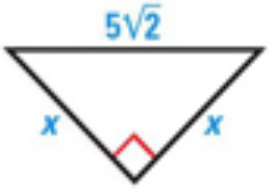
EXAMPLE 1 Find the length of the hypotenuse.

a)

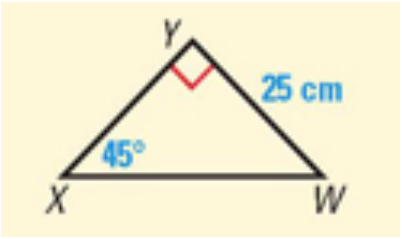


b)

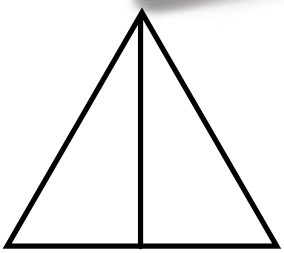
Example 2 Find the lengths of the legs in the triangle.



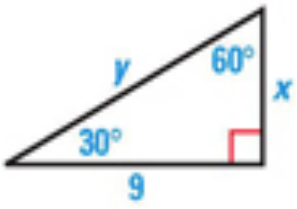
EXAMPLE 3 Find the length of WX.



EXAMPLE 4 The logo on the recycling bin at the right resembles an equilateral triangle with side lengths of 6cm. What is the approximate height of the logo?

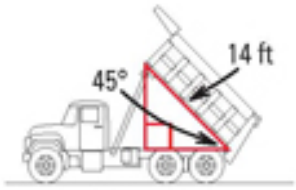


EXAMPLE 5 Find the values of x and y. Write your answer in simplest radical form.



Example 6 The body of a dump truck is raised to empty a load of sand. How high is the 14 foot body from the frame when it is tipped upward at the given angle?

a) 45° angle



b) 60° angle