

$$2^2 + h^2 = 4^2$$

$$4 + h^2 = 16$$

$$\begin{array}{r} 4 + h^2 = 16 \\ -4 = -4 \\ \hline h^2 = 12 \end{array}$$

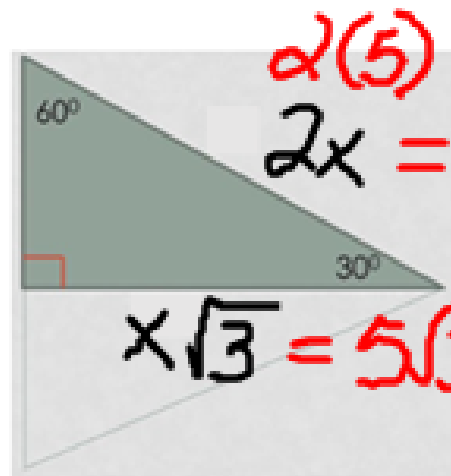
$$\sqrt{h^2} = \sqrt{12}$$

$$h = \sqrt{12}$$

$$h = \sqrt{3 \times 4}$$

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

$$5 = x$$



$$2(5)$$

$$2x = 10$$

$$x\sqrt{3} = 5\sqrt{3}$$

$$5^2 + h^2 = 10^2$$

$$25 + h^2 = 100$$

$$\begin{array}{r} 25 + h^2 = 100 \\ -25 = -25 \\ \hline h^2 = 75 \end{array}$$

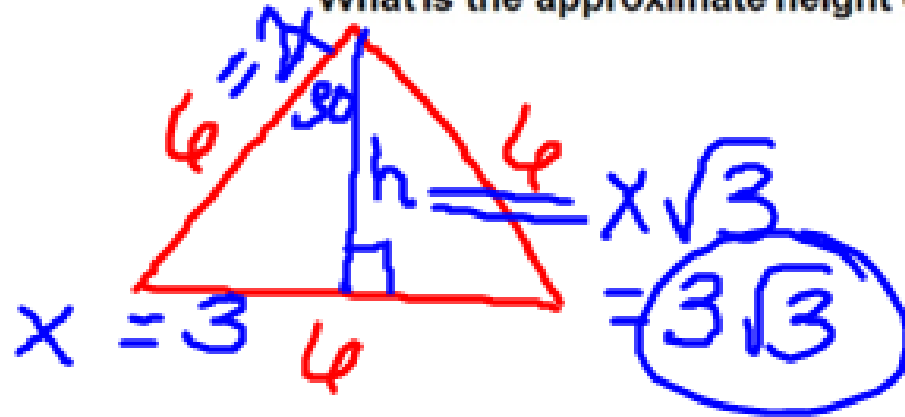
$$\sqrt{h^2} = \sqrt{75}$$

$$h = \sqrt{75}$$

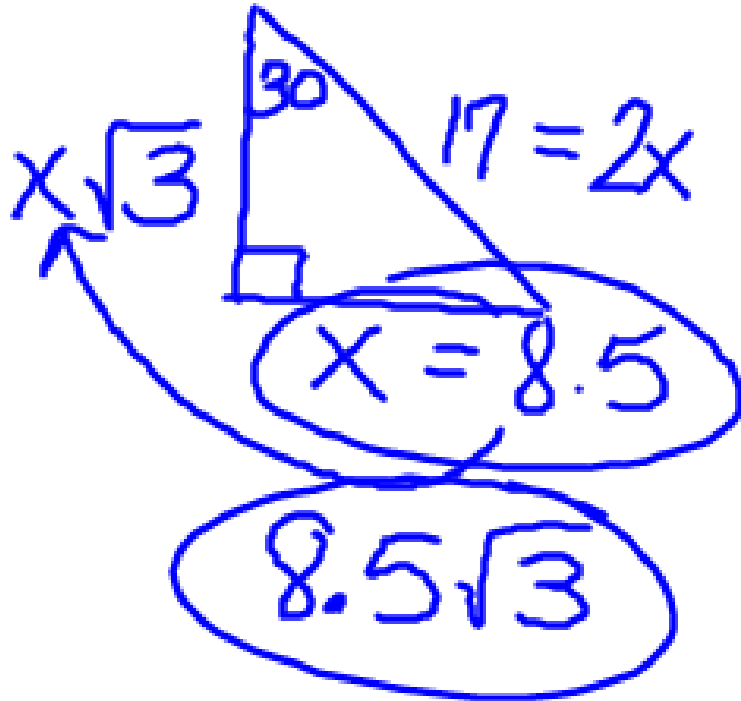
$$h = \sqrt{3 \times 25}$$

$$h = 5\sqrt{3}$$

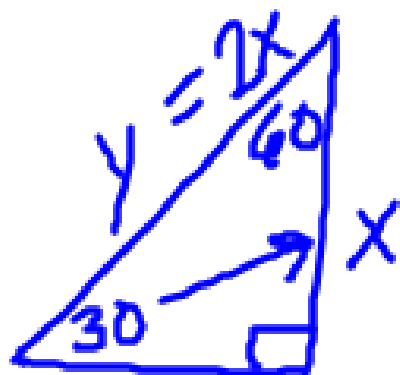
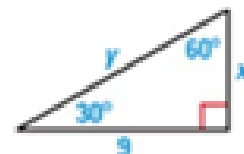
Logo The logo on a recycling bin resembles an equilateral triangle with side lengths of 6 centimeters. What is the approximate height of the logo?



The length of a hypotenuse of a $30^\circ - 60^\circ - 90^\circ$ right triangle is 17 yards. Find the other two lengths.



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



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

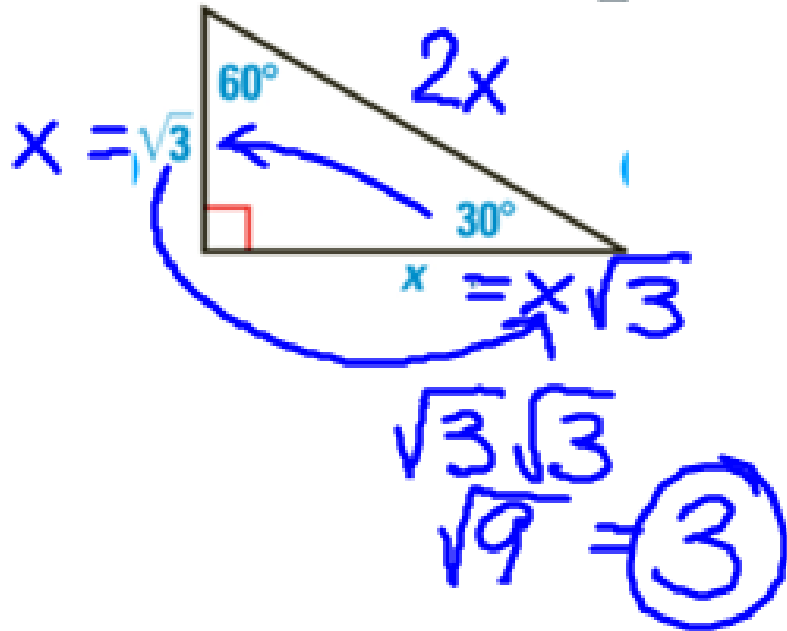
$$\frac{\sqrt{3} \cdot 9}{\sqrt{3} \cdot \sqrt{3}} = x$$

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

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

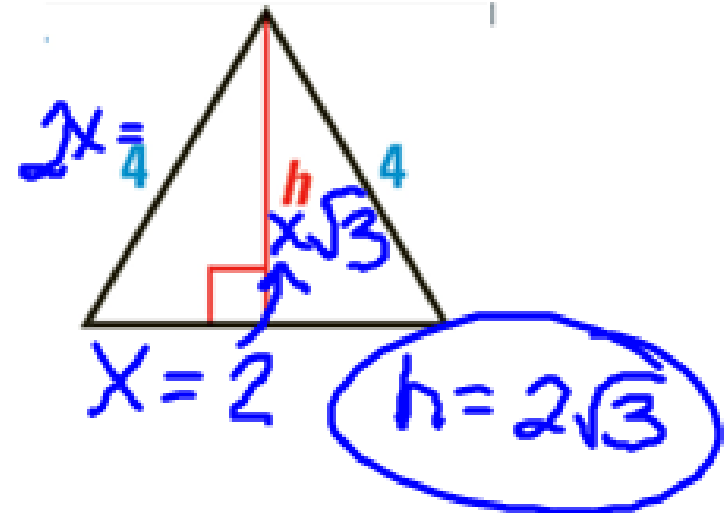
$$y = 2(3\sqrt{3})$$
$$= 6\sqrt{3}$$

You try: Find the value of x .



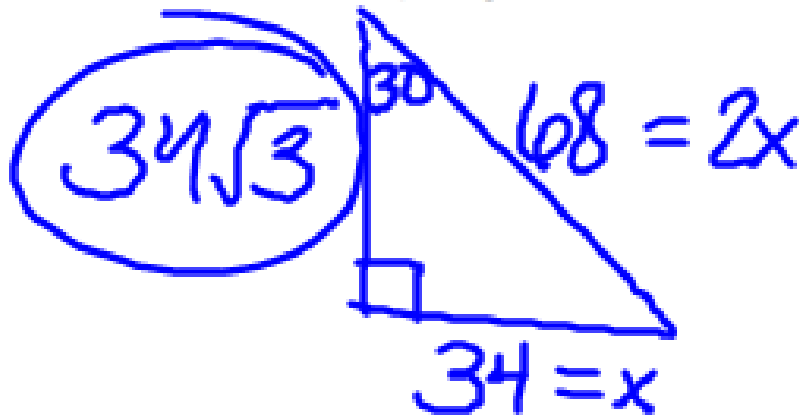
You try:

Find the height of the equilateral triangle.



You try:

A right triangle has a leg with a length of 34 and a hypotenuse with a length of 68. A student notices that the hypotenuse is twice the length of the given leg and says that this means it is a $30^\circ - 60^\circ - 90^\circ$ triangle. If the student is correct, what should the length of the remaining leg be? Explain your answer. Confirm your answer using the Pythagorean Theorem.

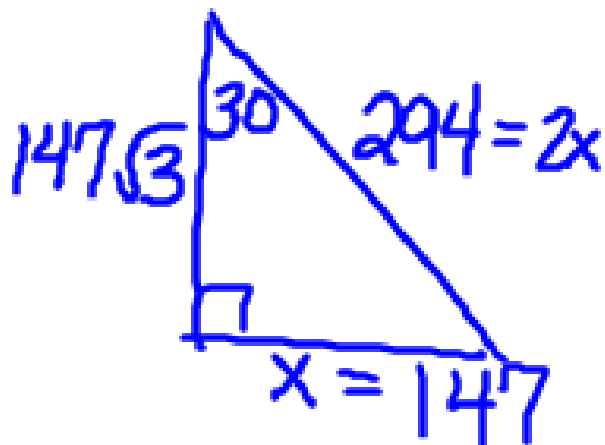


$$34^2 + x^2 = 68^2$$

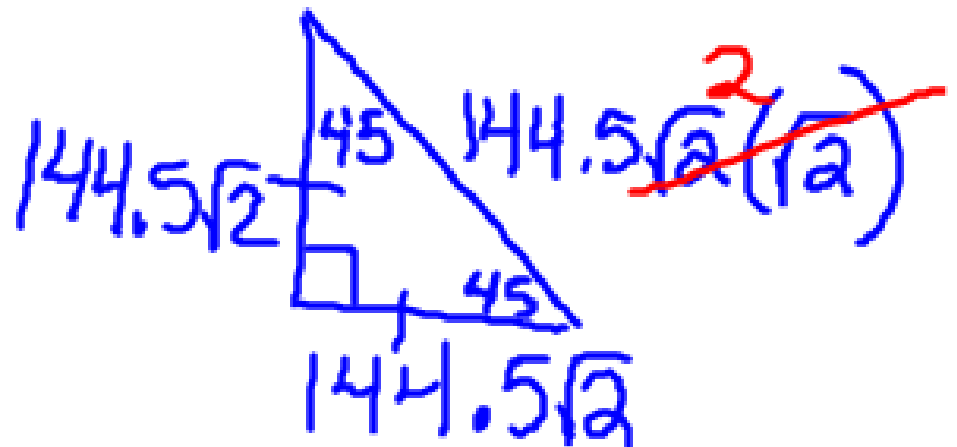
BEAT THE TEST!

1. The base of the engineering building at Lenovo Tech Industries is approximately a $30^\circ - 60^\circ - 90^\circ$ triangle with a hypotenuse of about 294 feet. The base of the engineering building at Asus Tech Industries is approximately an isosceles right triangle with a side about $144.5\sqrt{2}$ feet.

What is the difference between the perimeters of the two buildings? Round your answer to the nearest hundredth.



$$\begin{array}{r} P = 254.6115 \\ + 294 \\ + 147 \\ \hline 695.6115 \end{array}$$



$$\begin{array}{r} P = 204.3539(2) \\ + 144.5(2) \\ \hline 697.7078 \end{array}$$

$$2.0963 = \textcircled{2.10}$$