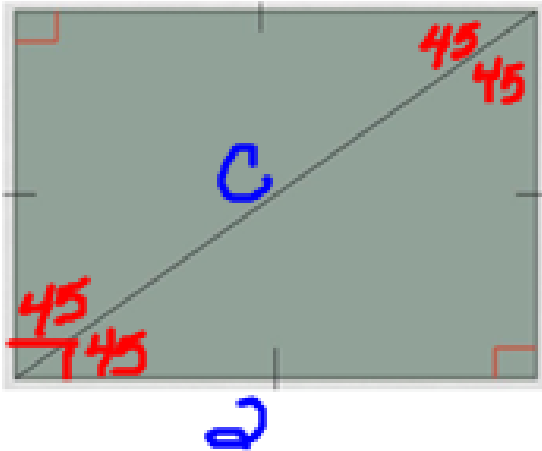


Special Right Triangles

45-45-90



$$2^2 + 2^2 = c^2$$

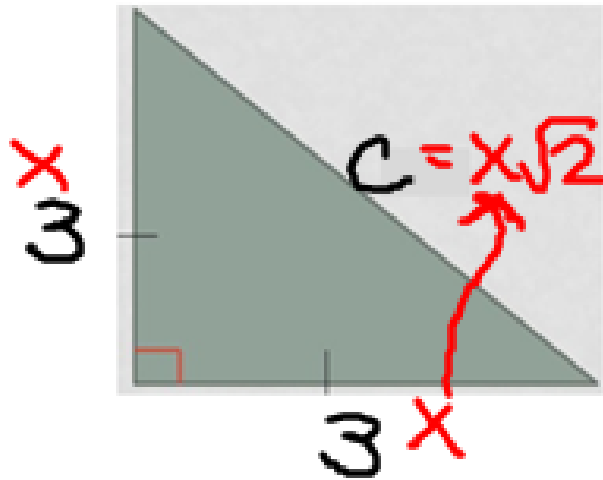
$$4 + 4 = c^2$$

$$\sqrt{8} = \sqrt{c^2}$$

$$\sqrt{2} \quad \sqrt{4}$$

$$\sqrt{2} \quad \sqrt{2}$$

$$2\sqrt{2}$$



$$w^2 + w^2 = c^2$$

$$9 + 9 = c^2$$

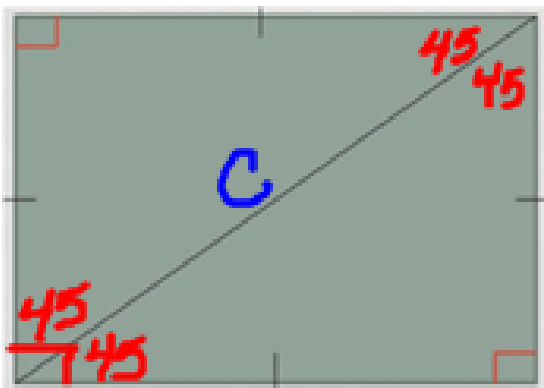
$$\sqrt{18} = \sqrt{c^2}$$

$$\sqrt{3} \quad \sqrt{6}$$

$$3\sqrt{2}$$

Special Right Triangles

45-45-90



$$2^2 + 2^2 = c^2$$

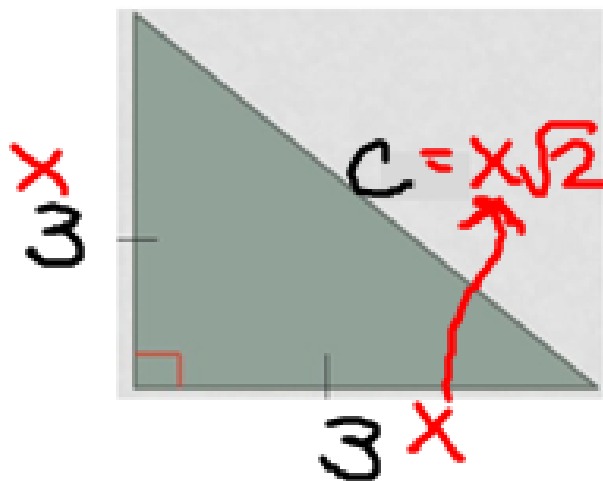
$$4 + 4 = c^2$$

$$\sqrt{8} = \sqrt{c^2}$$

$$\sqrt{2} \sqrt{4}$$

$$2\sqrt{2}$$

$$\sqrt{2} \sqrt{2}$$



$$w^2 + w^2 = c^2$$

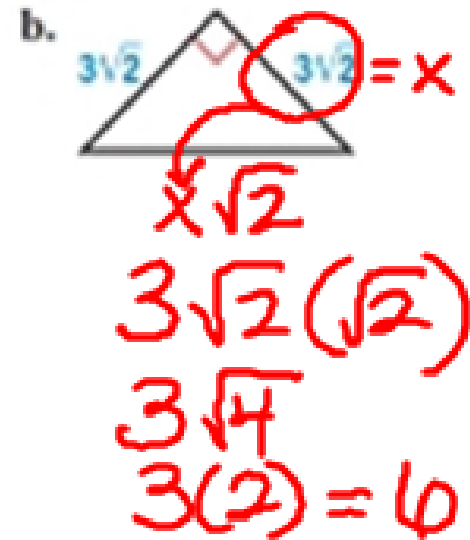
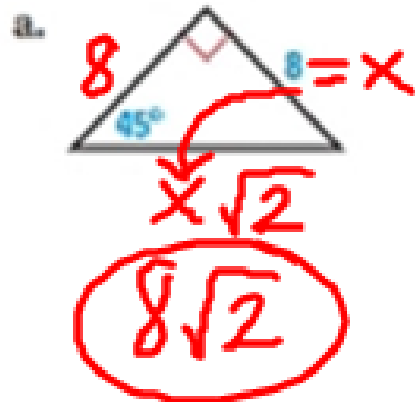
$$2w^2 = c^2$$

$$\sqrt{2w^2} = \sqrt{c^2}$$

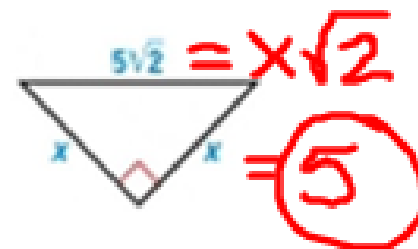
$$\sqrt{2} \sqrt{w^2}$$

$$w\sqrt{2}$$

Find the length of the hypotenuse.

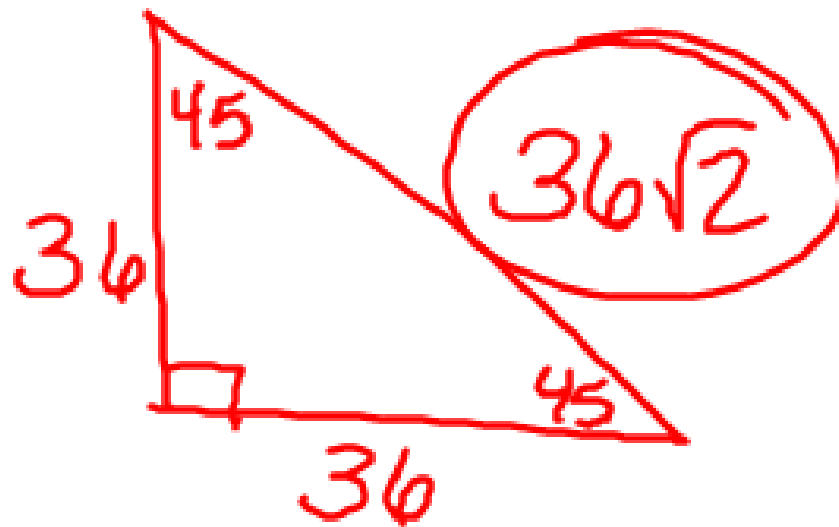


Find the lengths of the legs in the triangle.



You try:

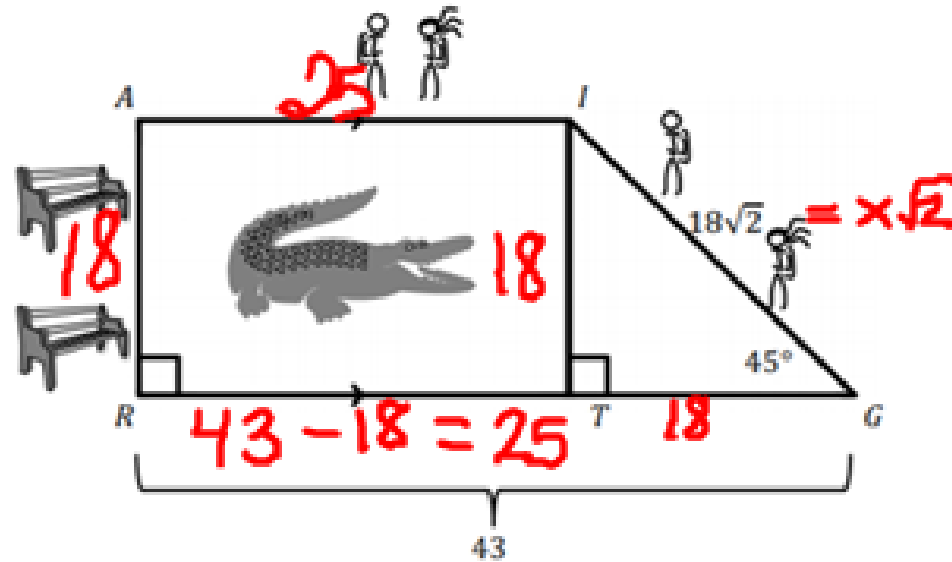
The Tilley household wants to build a patio deck in the shape of a $45^\circ - 45^\circ - 90^\circ$ triangle in a nice corner section of their backyard. They have enough room for a triangular deck with a leg measuring 36 feet. What will the length of the longest side be?



BEAT THE TEST!

1. Consider the drawing below.

$$\begin{array}{r} 43 \\ -18 \\ \hline \end{array}$$

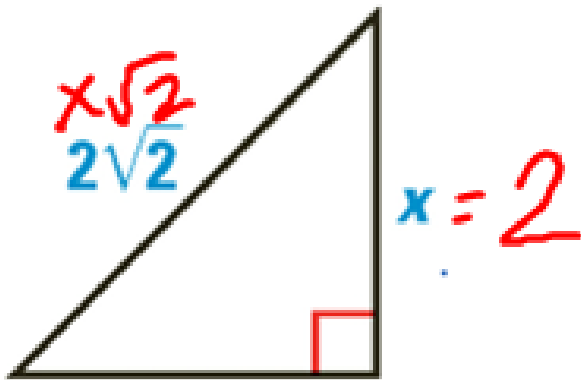


Part A: What is the perimeter of the figure?

$$\begin{array}{l} 43 + 18 + 25 + 18\sqrt{2} \\ 86 + 18\sqrt{2} \approx 111.5 \end{array}$$

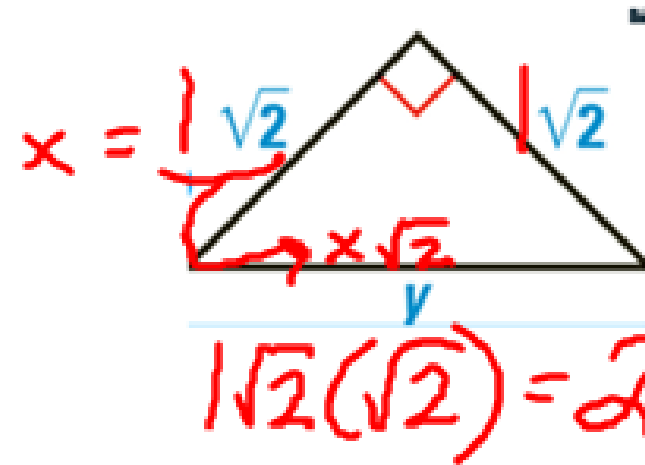
Part B: Write a 3-sentence long short story about the drawing and the calculations made in Part A.

You try. Find the value of x on this Isosceles Right Triangle.



You try:

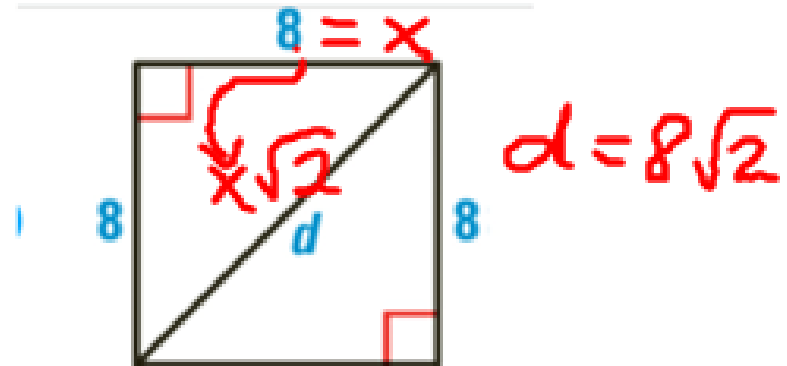
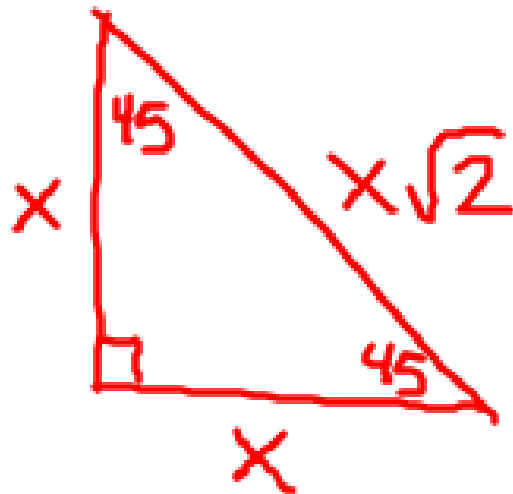
Find the value of y on this Right Isosceles Triangle

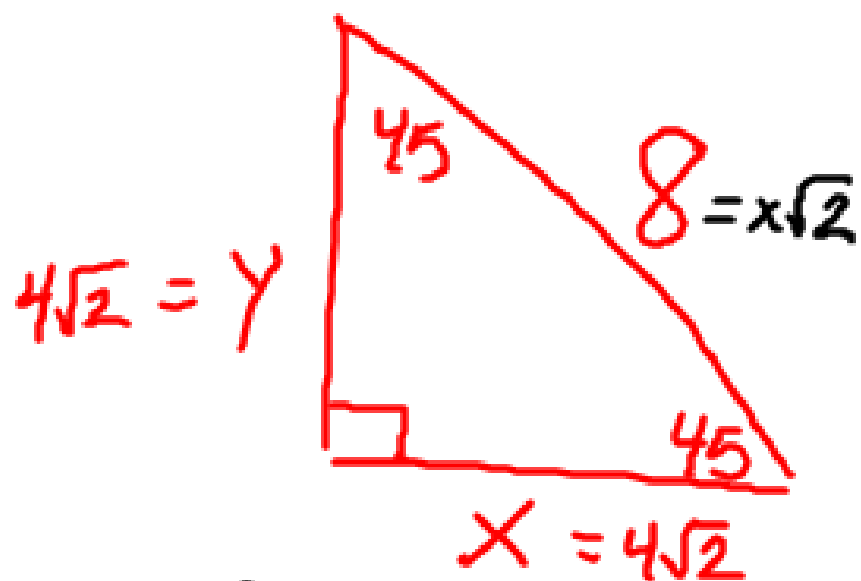


$$\begin{aligned}
 (\sqrt{2})^2 + (\sqrt{2})^2 &= y^2 \\
 2 + 2 &= y^2 \\
 \sqrt{4} &= \sqrt{y^2} \\
 2 &= y
 \end{aligned}$$

You try:

Find the value of the diagonal of the square below.





$$x^2 + x^2 = 8^2$$

$$\frac{2x^2}{2} = \frac{64}{2}$$

$$\sqrt{x^2} = \sqrt{32}$$

$$\begin{array}{c} \sqrt{2} \quad \sqrt{16} \\ \hline 4\sqrt{2} \end{array}$$

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

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

$$4\sqrt{2}$$