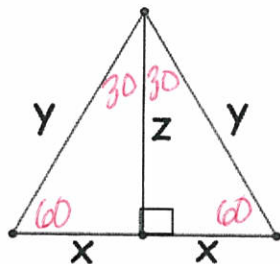


8.2 Special Right Triangles

Learning Target: *Uses Properties of 45-45-90 and 30-60-90 triangles to find missing side lengths.*

Two special kinds of right triangles are: 45° - 45° - 90° and 30° - 60° - 90°

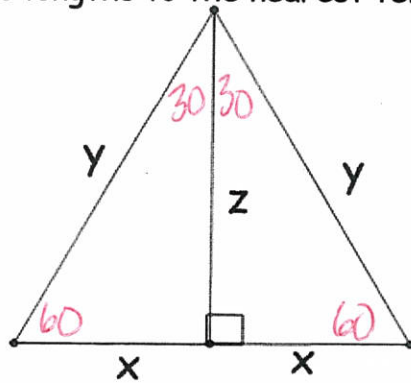
1) Measure the angles, side lengths to the nearest tenth of a centimeter.



$$x = \underline{1.7}$$

$$y = \underline{3.4}$$

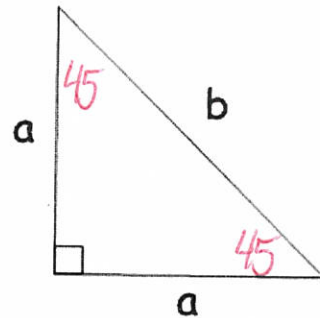
$$z = \underline{3}$$



$$x = \underline{2.6}$$

$$y = \underline{5.2}$$

$$z = \underline{4.5}$$



$$a = \underline{3.5}$$

$$b = \underline{5}$$

2) Describe the triangles formed by the altitudes.

In the 1st two triangles, two 30-60-90 triangles are formed. Third is a 45-45-90 triangle.

3) Find the following ratios for each triangle:

$$\frac{z}{x} = \underline{1.76} \quad \frac{y}{x} = \underline{2}$$

$$\frac{z}{x} = \underline{1.731} \quad \frac{y}{x} = \underline{2}$$

$$\frac{b}{a} = \underline{1.4286}$$

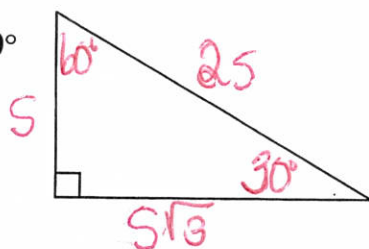
4) Compare the ratios from #3. Are the results similar for any of your triangles?

The ratios for $\frac{z}{x}$ is ≈ 1.7 and $\frac{y}{x} = 2$.

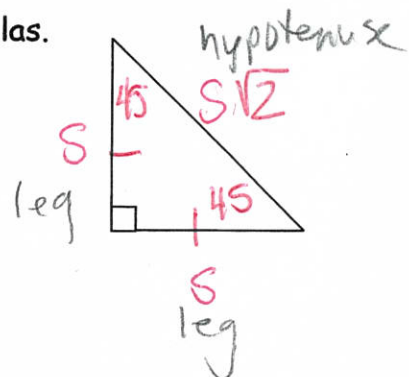
5) Use your calculator to find $\sqrt{3}$ 1.7320568 and $\sqrt{2}$ 1.4142136

Draw a picture of both triangles to demonstrate the formulas.

30° - 60° - 90°



45° - 45° - 90°



Find the missing sides using your formulas.

