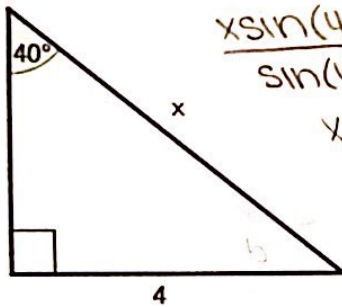


Name: Key Period: _____

USING TRIGONOMETRY TO SOLVE FOR MISSING SIDE LENGTHS

Directions: Use trigonometry to solve for the variable in the triangles below. Show all of your work including the set-up of your trig ratio.

1.



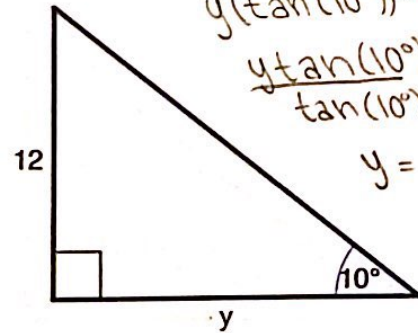
$$x (\sin(40^\circ)) = \left(\frac{4}{x}\right) x$$

$$\frac{x \sin(40^\circ)}{\sin(40^\circ)} = \frac{4}{\sin(40^\circ)}$$

$$x = \frac{4}{\sin(40^\circ)}$$

$$x \approx 6.2$$

2.



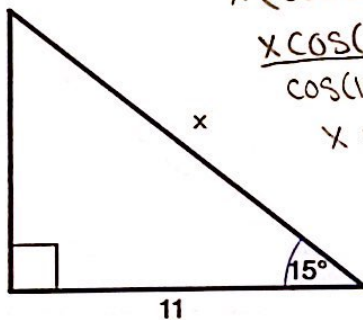
$$y (\tan(10^\circ)) = \left(\frac{12}{y}\right) y$$

$$\frac{y \tan(10^\circ)}{\tan(10^\circ)} = \frac{12}{\tan(10^\circ)}$$

$$y = \frac{12}{\tan(10^\circ)}$$

$$y \approx 68.1$$

3.



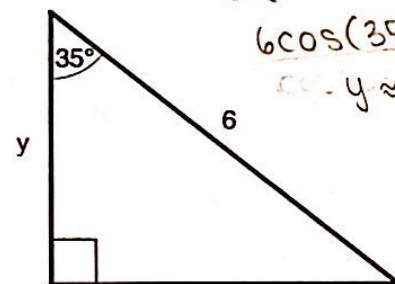
$$x (\cos(15^\circ)) = \left(\frac{11}{x}\right) x$$

$$\frac{x \cos(15^\circ)}{\cos(15^\circ)} = \frac{11}{\cos(15^\circ)}$$

$$x = \frac{11}{\cos(15^\circ)}$$

$$x \approx 11.4$$

4.

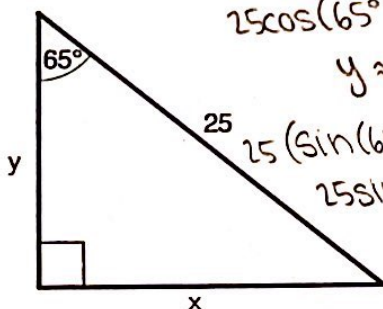


$$6 (\cos(35^\circ)) = \left(\frac{y}{6}\right) 6$$

$$6 \cos(35^\circ) = y$$

$$y \approx 4.9$$

5.



$$25 (\cos(65^\circ)) = \left(\frac{y}{25}\right) 25$$

$$25 \cos(65^\circ) = y$$

$$y \approx 10.6$$

$$25 (\sin(65^\circ)) = \left(\frac{x}{25}\right) 25$$

$$25 \sin(65^\circ) = x$$

$$x \approx 22.7$$

6. What kind of triangle is this? Do you need to use trig to find x and y?

* This triangle is a 45-45-90 triangle, so you do not need trig to solve for missing side lengths.

