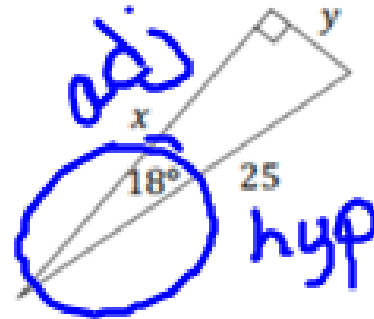


3. Consider the following figure.



- a. Which trigonometric function should you use to find the value of x?

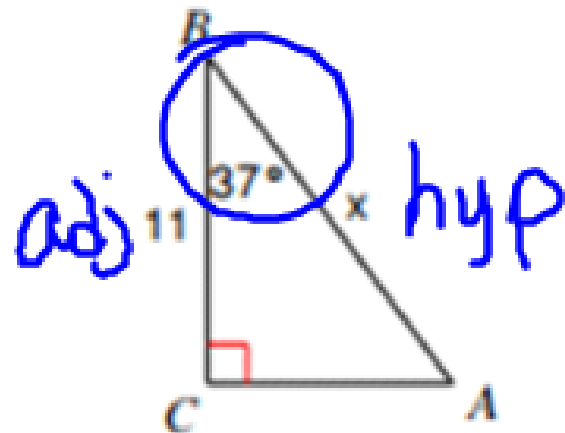
COSINE

- b. Write an equation to find x in the above figure.

$$\cos 18 = \frac{x}{25}$$

- c. Find the value of x in the above figure.

$$25 \cos 18 = x$$
$$x = 23.8$$

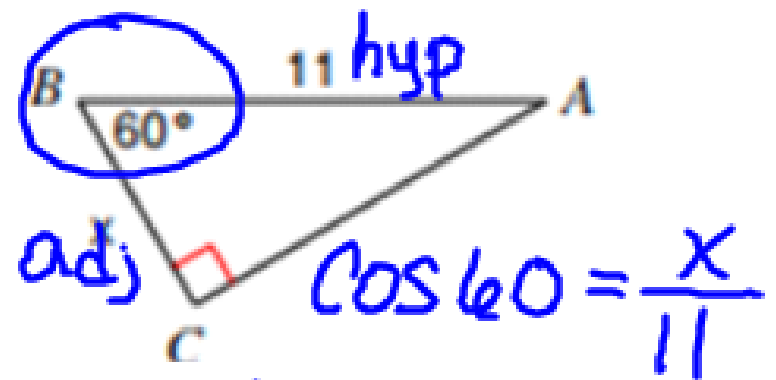


$$\cos 37 = \frac{11}{x}$$

$$x = \frac{11}{\cos 37}$$

$$= 13.8$$

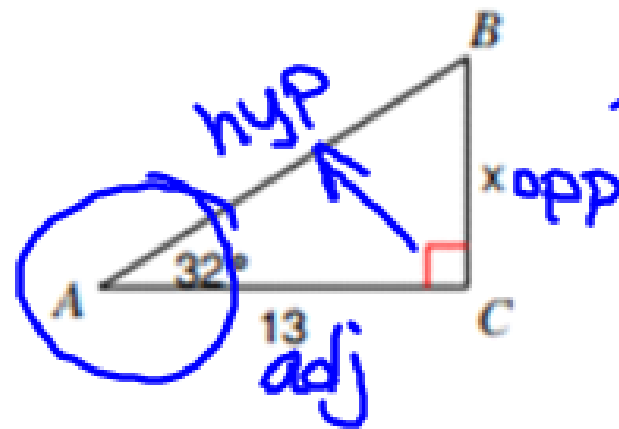
$$11 \div \cos 37 =$$



$$\cos 60 = \frac{x}{11}$$

$$11 \cos 60 = x$$

$$5.5 = x$$



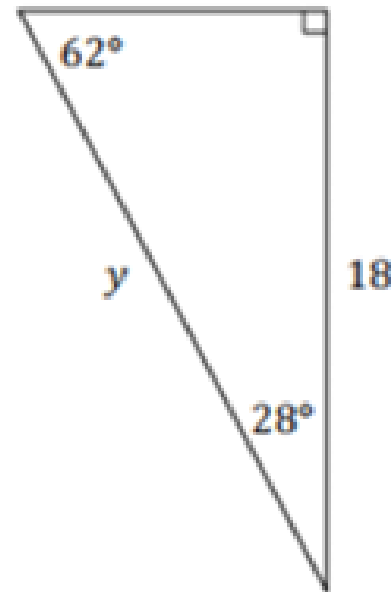
$$\tan 32 = \frac{x}{13}$$

$$13 \tan 32 = x$$

$$8.1 = x$$

$$13 \times 32 \tan =$$

Consider the figure below.



$$\cos 28 = \frac{18}{y}$$

$$y = \frac{18}{\cos 28}$$

Determine the value of y .

$$y = 20.4$$

$$\sin 62 = \frac{18}{y}$$

$$\frac{18}{\sin 62} = y$$

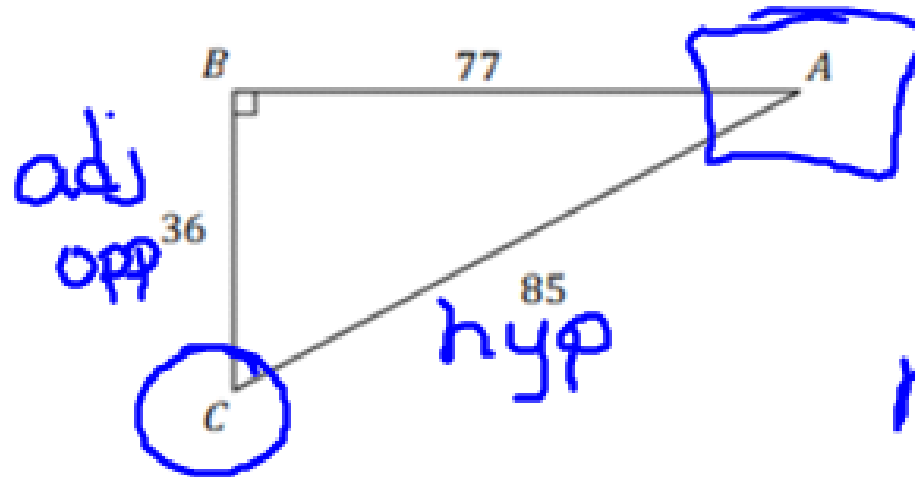
$$y = 20.4$$

Given the lengths of sides, we can use "trig" functions to find missing angles by using their inverses:

\sin^{-1} , \cos^{-1} , \tan^{-1}

Let's Practice!

1. Consider the triangle below.



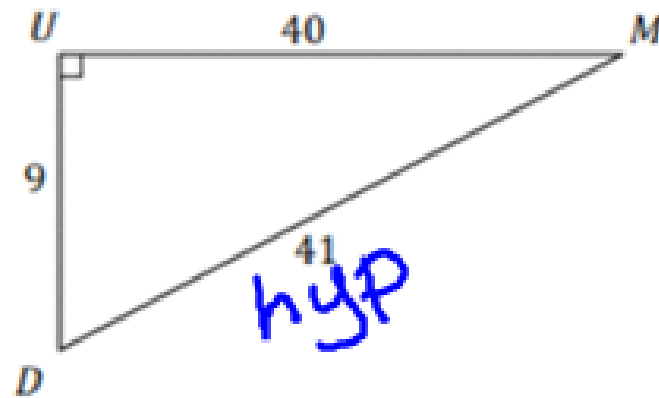
$$m\angle A = 25.1^\circ$$
$$m\angle C = 64.9^\circ$$

Find $\cos C$, $\sin A$, $m\angle A$ and $m\angle C$ for the triangle.

$$\cos C = \frac{36}{85}$$
$$= .4235$$

$$\sin A = \frac{36}{85}$$
$$= .4235$$

2. Consider the triangle below.



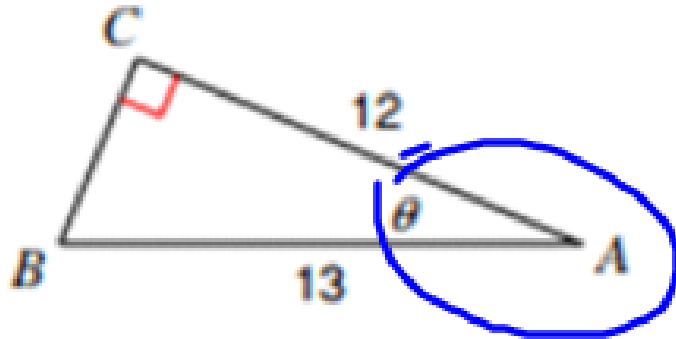
Find $\tan M$, $\cos D$, $m\angle D$ and $\sin M$ for the triangle.

$$\begin{aligned}\tan M &= \frac{9}{40} \\ &= .2250\end{aligned}$$

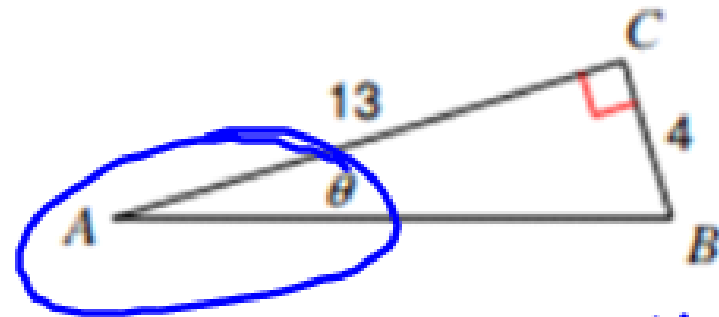
$$m\angle D = 77.3^\circ$$

$$\begin{aligned}\cos D &= \frac{9}{41} \\ &= .2195\end{aligned}$$

$$\begin{aligned}\sin M &= \frac{9}{41} \\ &= .2195\end{aligned}$$



$$\begin{aligned} \cos A &= \frac{12}{13} \\ &= .923 \\ m\angle A &= 22.6^\circ \end{aligned}$$



$$\begin{aligned} \tan A &= \frac{4}{13} \\ &\approx 0.3076 \\ m\angle A &= 17.1 \end{aligned}$$

