

Objective: Evaluate trigonometric functions of acute angles.

Warmup

Convert to degrees:

1. $\frac{5\pi}{11}$

2. -0.57

Convert to radians (round to 3 decimals):

3. 87.4°

4. 345°

Objective: Evaluate trigonometric functions of acute angles.

Warmup

Convert to degrees:

1. $\frac{5\pi}{11} = 81.8^\circ$

2. $-0.57 = -32.7^\circ$

Convert to radians (round to 3 decimals):

3. $87.4^\circ = 1.525 \text{ radians}$

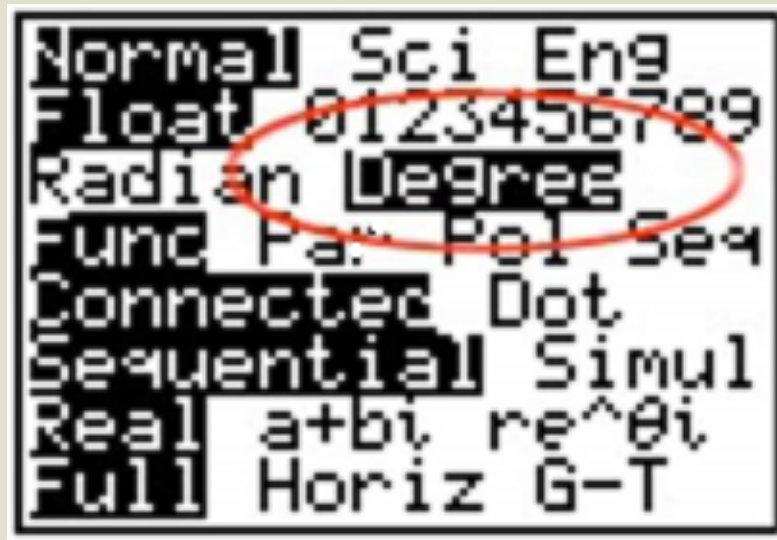
4. $345^\circ = 6.021 \text{ radians}$

Objective: Evaluate trigonometric functions of acute angles.

Calculator Settings

IF the angle given is in degrees, make sure your calculator is set to degrees.

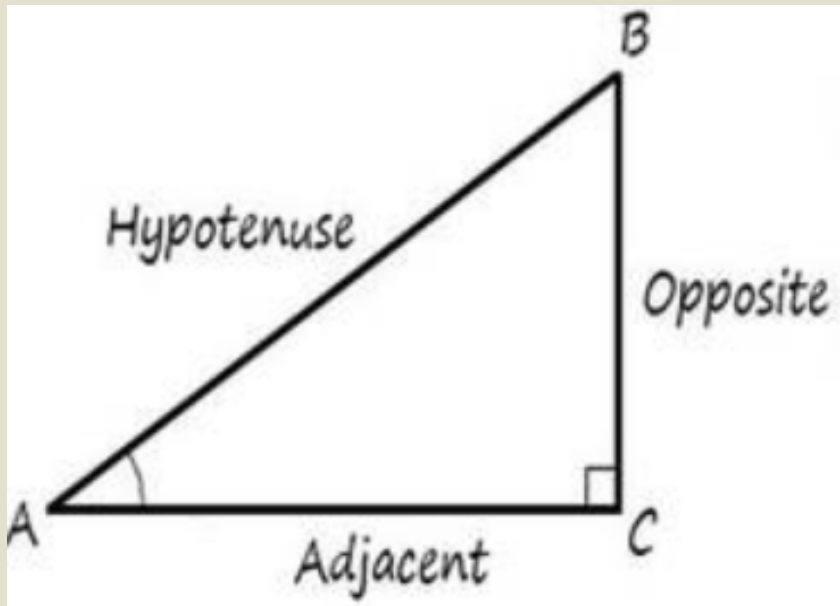
This screen is accessed via the MODE button



If it is in radians, make sure it is set to radians.

Objective: Evaluate trigonometric functions of acute angles.

Right Triangle Definitions of Trigonometric Functions



$$\sin \theta = \frac{opp}{hyp}$$

$$\csc \theta = \frac{hyp}{opp}$$

$$\cos \theta = \frac{adj}{hyp}$$

$$\sec \theta = \frac{hyp}{adj}$$

$$\tan \theta = \frac{opp}{adj}$$

$$\cot \theta = \frac{adj}{opp}$$

The opposite and adjacent sides are relative to the location of the angle you are using. The picture above is using angle A as θ .

Objective: Evaluate trigonometric functions of acute angles.

Right Triangle Definitions of Trigonometric Functions

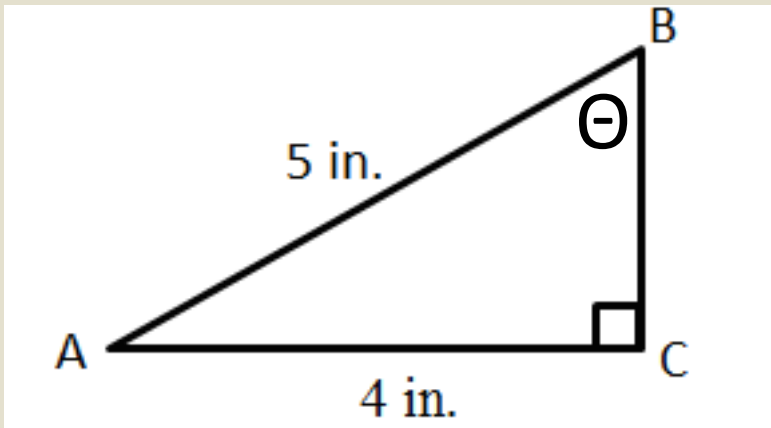
$$\begin{array}{ll} \sin \theta = \frac{\textit{opp}}{\textit{hyp}} & \csc \theta = \frac{\textit{hyp}}{\textit{opp}} \\ \cos \theta = \frac{\textit{adj}}{\textit{hyp}} & \sec \theta = \frac{\textit{hyp}}{\textit{adj}} \\ \tan \theta = \frac{\textit{opp}}{\textit{adj}} & \cot \theta = \frac{\textit{adj}}{\textit{opp}} \end{array}$$

You should be familiar with sine, cosine and tangent from geometry and algebra II.

The new ones are cosecant, secant, and cotangent. These are the reciprocals of the original three.

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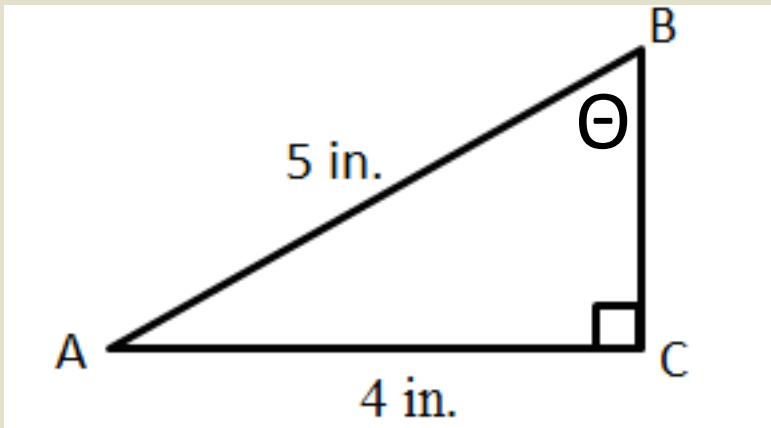
Use the figure to find the values of the six trigonometric functions of θ



First we need to calculate the length of the remaining side

Objective: Evaluate trigonometric functions of acute angles.

Use the figure to find the values of the six trigonometric functions of θ



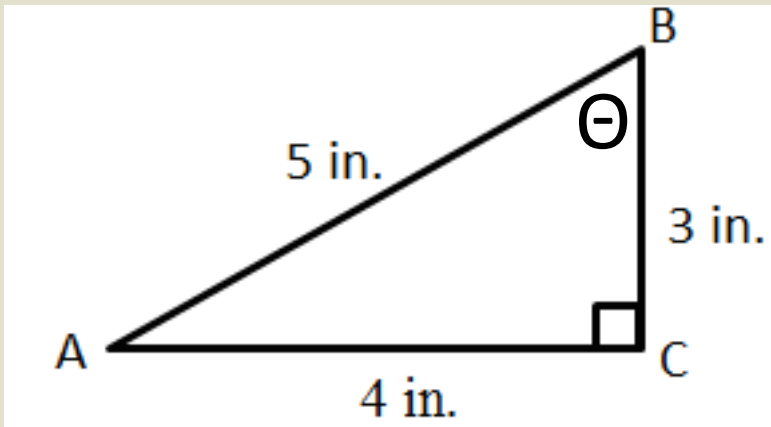
$$a^2 + b^2 = c^2$$

$$4^2 + x^2 = 5^2$$

$$x = 3$$

Objective: Evaluate trigonometric functions of acute angles.

Use the figure to find the values of the six trigonometric functions of θ



Now just set up each trig ratio relative to θ :

$$\sin \theta = \frac{4}{5}$$

$$\cos \theta = \frac{3}{5}$$

$$\tan \theta = \frac{4}{3}$$

$$\csc \theta = \frac{5}{4}$$

$$\sec \theta = \frac{5}{3}$$

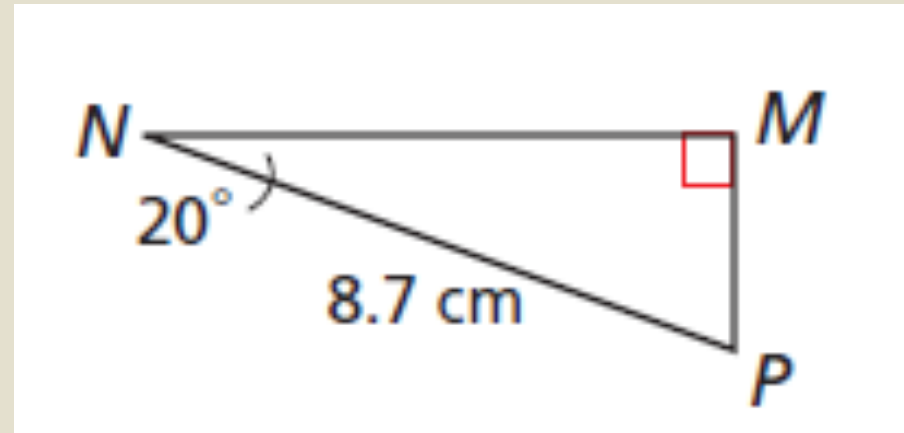
$$\cot \theta = \frac{3}{4}$$

Objective: Evaluate trigonometric functions of acute angles.

For that last problem, we were just setting up the ratios. We didn't have to actually solve anything.

Use trig ratios to solve for the length MP:

To solve, we pick the trig ratio that has the side we know and the side we want to find. In this case that is sin.



$$\sin 20 = \frac{x}{8.7}$$

Then use algebra to solve for x and plug in to calculator

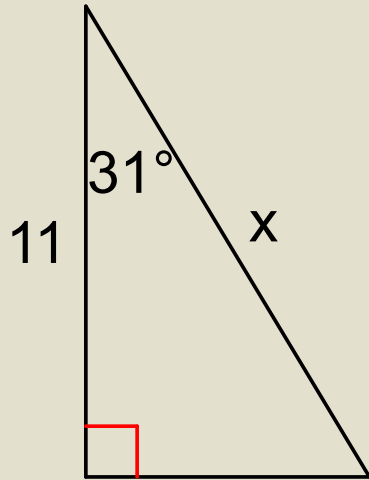
$$8.7 \sin 20 = x$$

$$x = 2.976$$

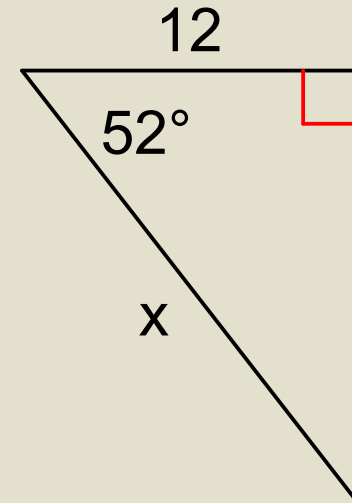
Objective: Evaluate trigonometric functions of acute angles.

Practice Finding unknown sides

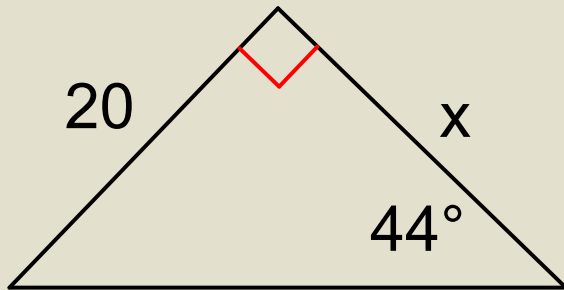
1.



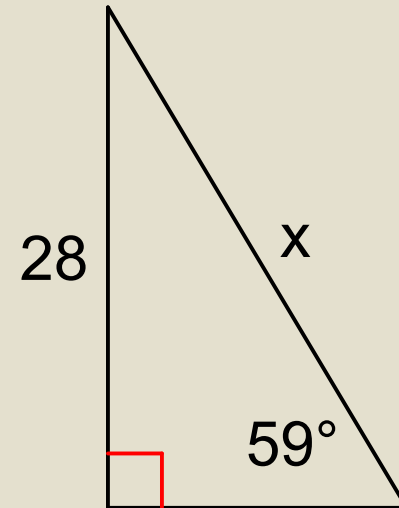
2.



3.

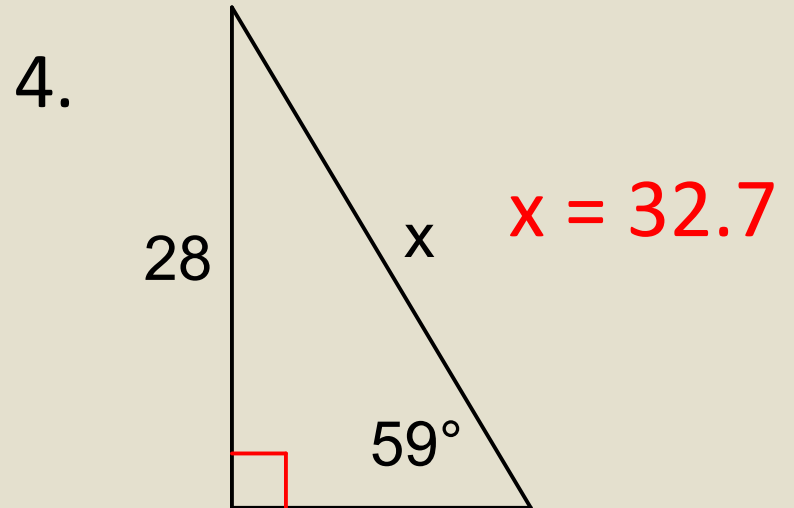
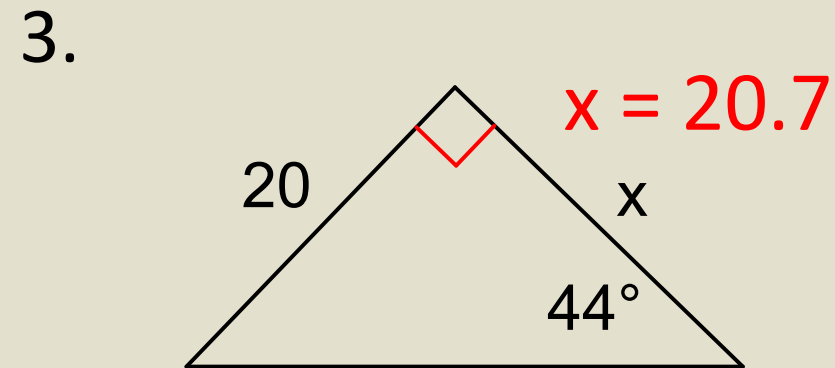
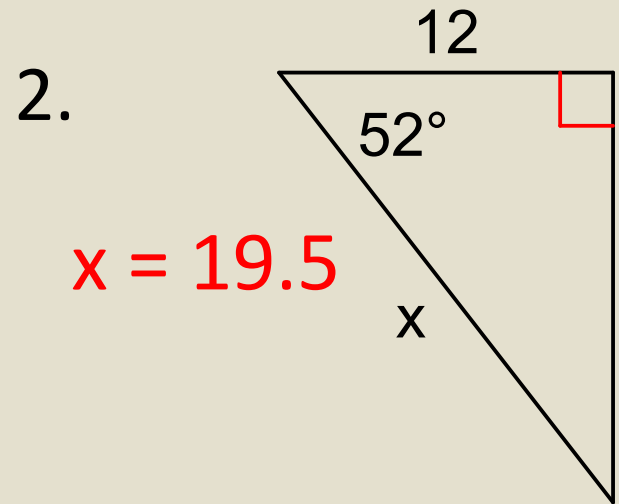
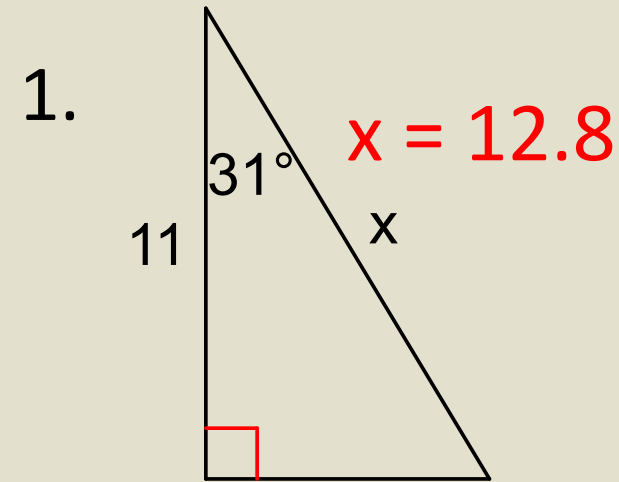


4.



Objective: Evaluate trigonometric functions of acute angles.

Practice Finding unknown sides



Objective: Evaluate trigonometric functions of acute angles.

Assignment:

Log in to Office 365

Complete the assignment:

Trig to Solve Unknown Sides (Week 2, Day 1)

SHOW ALL YOUR WORK!

Due to the frustrations of answers being marked wrong due to formatting etc, I've decided the assignments this week will just be uploaded so I can see all your work. I will also post the answers at the end of the document so you can check, basically more like we used to do in class.

NO WORK = NO CREDIT (now more important than ever)