

Learning Outcomes: What should you be able to after watching the videos?

- Video 1: Introduction to Right Triangle Trigonometry
 - State and use the formulas for the six trigonometric functions defined by points on the plane.
 - Identify the proper signs of the six trigonometric functions based on the quadrant in which the angle lies.
- Video 2: Reference Angles
 - Draw a triangle containing the reference angle for a given point or angle.
 - Calculate the reference angle for a given angle.
- Video 3: Applications of the Unit Circle
 - Calculate the six trigonometric functions using algebraic methods.
 - Determine the quadrant in which an angle lies from the signs of trigonometric functions.

#1) State the formulas for the six trigonometric functions using a general point on the plane.

$$\begin{array}{lll} \sin \theta = & \cos \theta = & \tan \theta = \\ \csc \theta = & \sec \theta = & \cot \theta = \end{array}$$

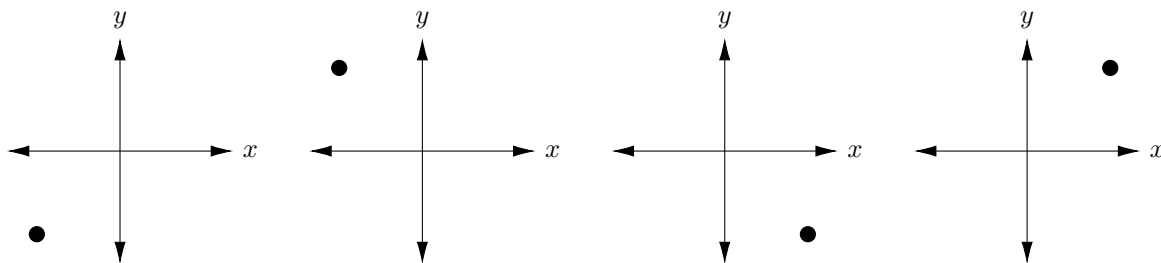
#2) Evaluate the six trigonometric functions for the point $(-2, 5)$.

$$\begin{array}{lll} \sin \theta = & \cos \theta = & \tan \theta = \\ \csc \theta = & \sec \theta = & \cot \theta = \end{array}$$

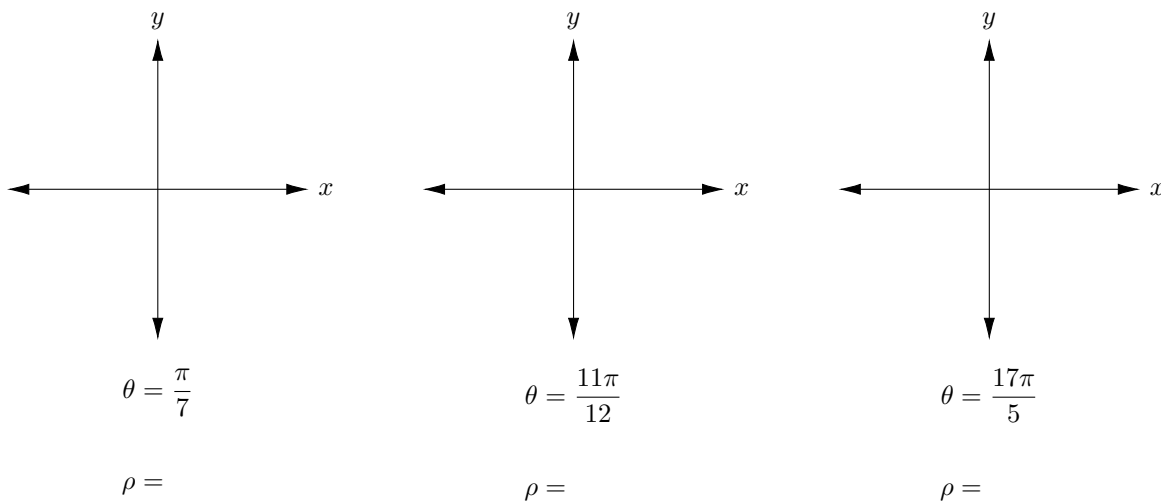
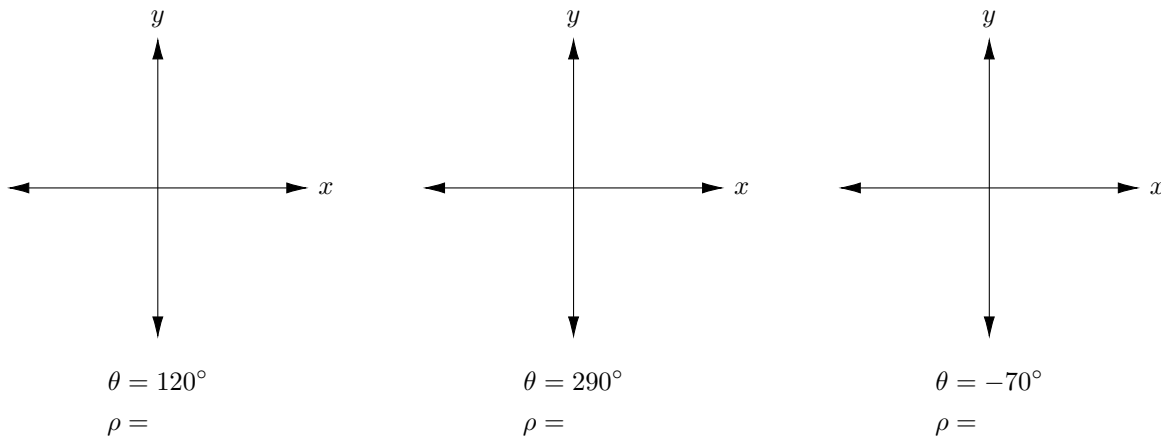
#3) For each entry in the chart, write a $+$ or $-$ sign to indicate whether the function is positive or negative in the quadrant.

	Quadrant I	Quadrant II	Quadrant III	Quadrant IV
$\sin(\theta)$				
$\cos(\theta)$				
$\tan(\theta)$				
$\csc(\theta)$				
$\sec(\theta)$				
$\cot(\theta)$				

#4) For each point, draw the right triangle that is used to generate the reference angle, and then label the reference angle ρ .



#5) Sketch the given angles in the coordinate axes, labeling both the original angle and the reference angle. Then determine the reference angle. (Note: Remember that the reference angle will always be an acute angle.)



#6) Suppose θ is in the third quadrant and that $\cos(\theta) = -\frac{2}{3}$. Determine the values of the other trigonometric functions using algebraic methods. Present your work in an organized manner and also write your final answers in the appropriate spaces on the right.

$$\sin(\theta) =$$

$$\cos(\theta) =$$

$$\tan(\theta) =$$

$$\csc(\theta) =$$

$$\sec(\theta) =$$

$$\cot(\theta) =$$

#7) Suppose θ is in the second quadrant and that $\sin(\theta) = \frac{\sqrt{2}}{7}$. Determine the values of the other trigonometric functions using algebraic methods. Present your work in an organized manner and also write your final answers in the appropriate spaces on the right.

$$\sin(\theta) =$$

$$\cos(\theta) =$$

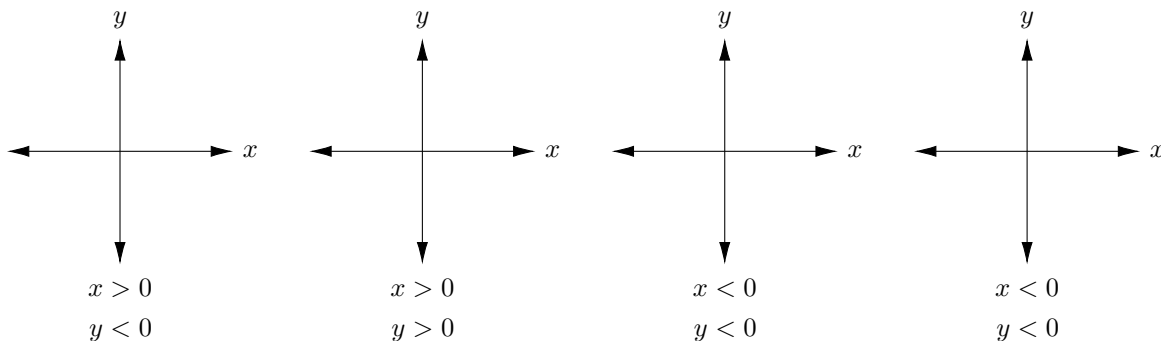
$$\tan(\theta) =$$

$$\csc(\theta) =$$

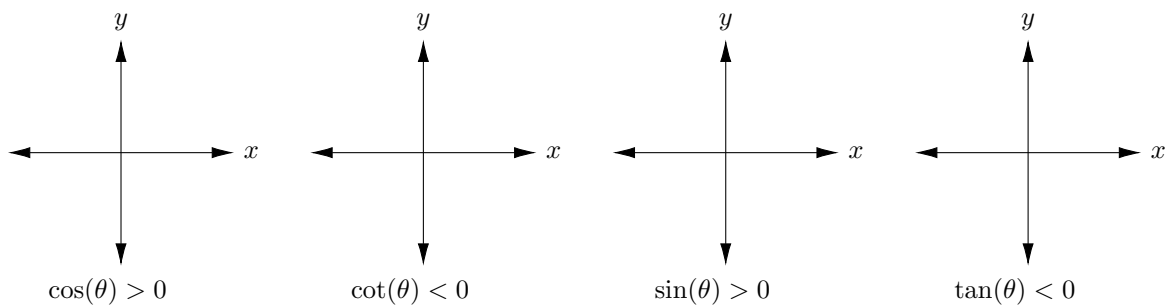
$$\sec(\theta) =$$

$$\cot(\theta) =$$

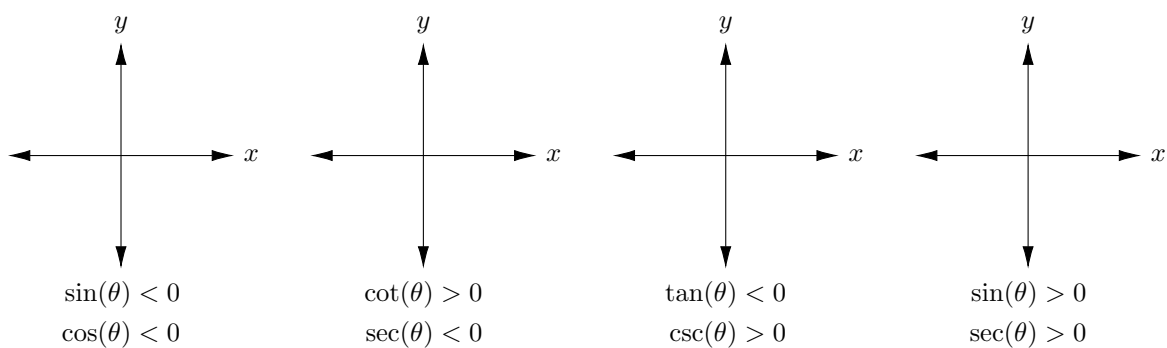
#8) On each set of coordinate axes, highlight the quadrants that correspond to the given information.



#9) On each set of coordinate axes, highlight the quadrants that correspond to the given information.



#10) On each set of coordinate axes, highlight the quadrants that correspond to the given information.



Was any aspect of any of the videos confusing or unclear? Do you have any questions?