Trigonometric Summary Name: _____

Trigonometric Review:

$\cos\theta =$ $\csc\theta =$

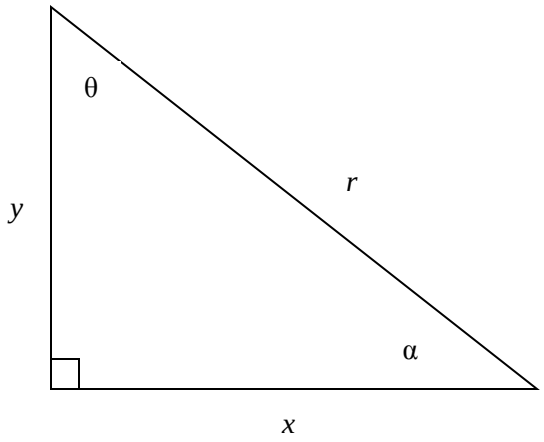
$\cos\alpha =$ $\csc\alpha =$

$\sin\alpha =$ $\sec\theta =$

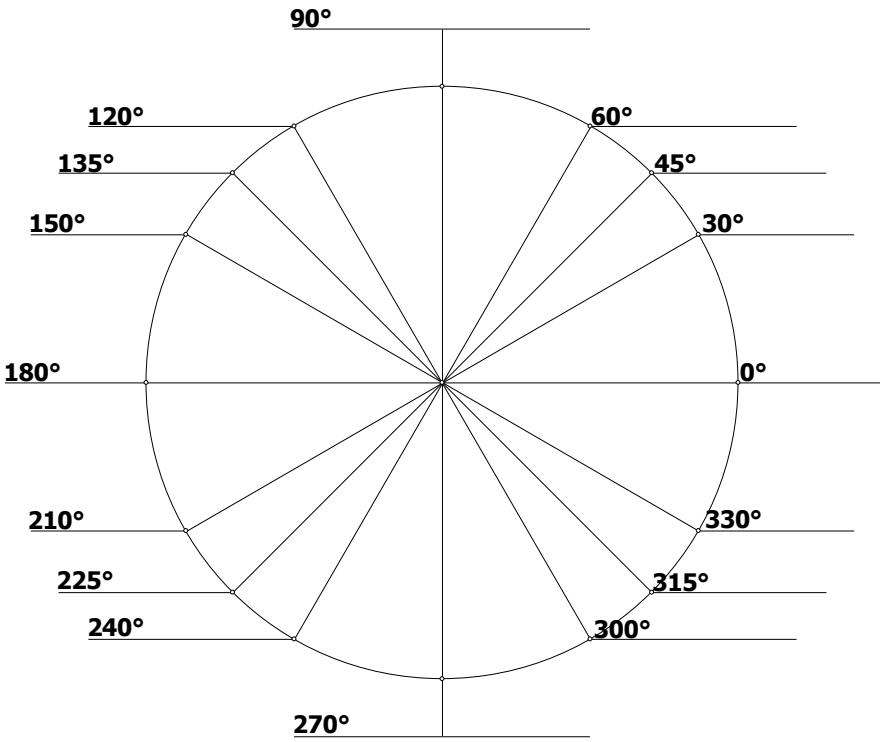
$\sin\theta =$ $\sec\alpha =$

$\tan\theta =$ $\cot\alpha =$

$\tan\alpha =$ $\cot\theta =$



Now visualize right triangles on a circle with radius of one unit and a central angle of θ. Use these trigonometric ratios to find the points of triangle's vertex that lie along the arc of the circle.



Using what you took notes on earlier, the ordered pairs of the vertex along the arc of the circle are found by $(x, y) = (horizontal\ length, vertical\ length) = (\cos\theta, sin\theta)$, given that the radius is one unit.

Okay, so what if the radius is not one unit? We can use Pythagorean Theorem in order to determine the value of $(\cos\theta, sin\theta)$.

$\cos\theta = \frac{adj\ leg}{hypot} = \frac{horizontal\ length}{radius} = \frac{x}{r}$

Rewrite $\cos\theta = \frac{x}{r}$ to solve for *x*.

Repeat the above steps to find $\sin\theta$. Rewrite this expression to solve for *y*.

Suppose $x = \sqrt{3}$ and $y = 7$. Find *r* and then $(\cos\theta, sin\theta)$.

Now you know how to find cosine and sine given a triangle and a circle, you also need to know how to find the length around a circle, i.e. ARC LENGTH

Define ***arc length***: _____

_____

There are **two** formulas for arc length, one for degrees and one for radians. Get confused which to use? Make sure θ is measured in radians then use $s = r\theta$.

Angular speed has an obvious connection to science and engineering. Define ***angular speed*** : _____

_____

What are two standard units of measurement of angular speed? _____

_____

It is necessary to convert angular speed into ***linear speed*** so laypersons can understand the information (like converting Celsius to Fahrenheit while vacationing in Mexico). Give four standard units of measurement of linear speed: _____

_____

_____

What are the two primary conversion units to help rewrite angular speed to linear (or vice versa)?

Define ***coterminal angles:*** _____

_____

How can you find coterminal angles?