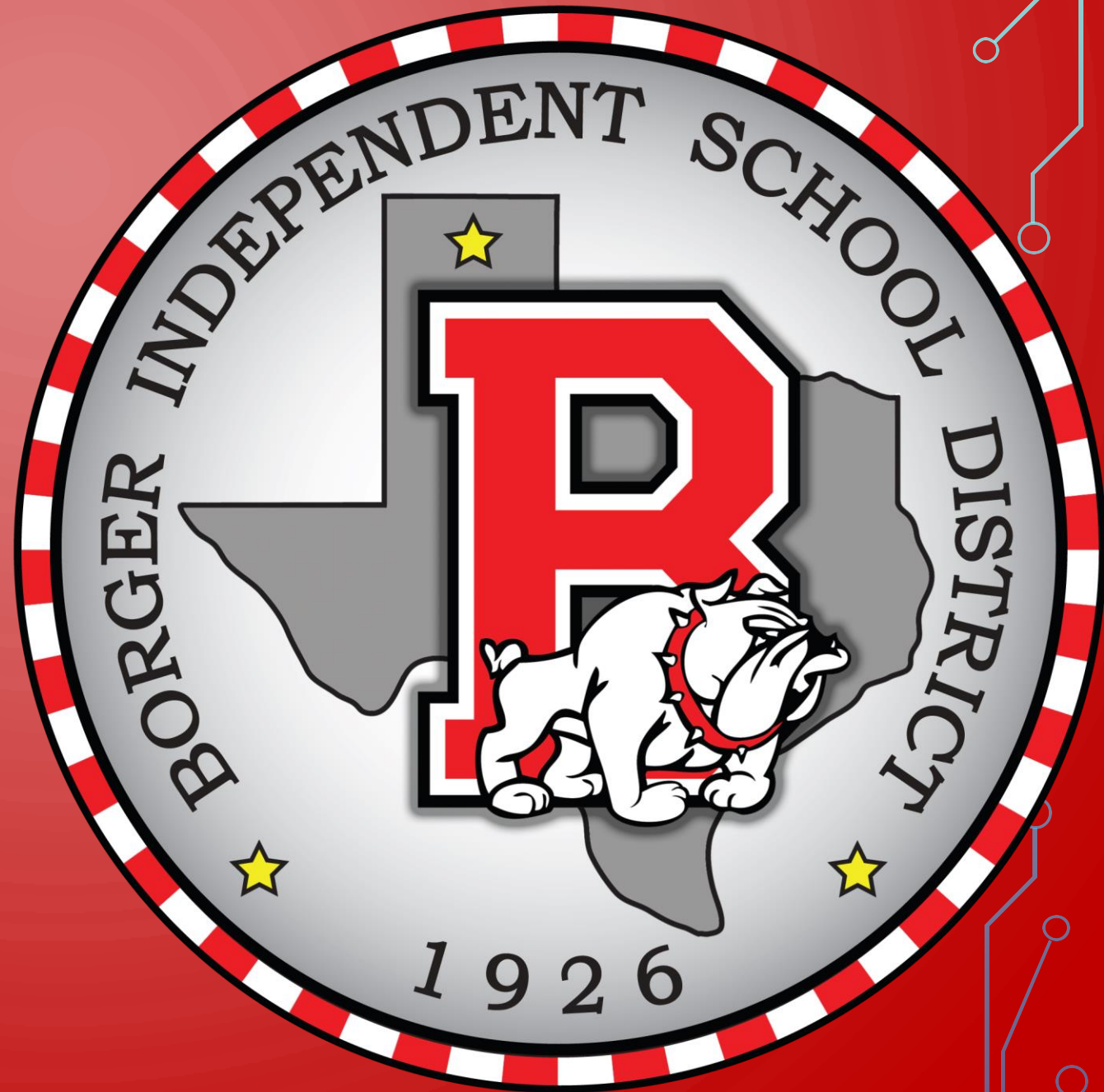
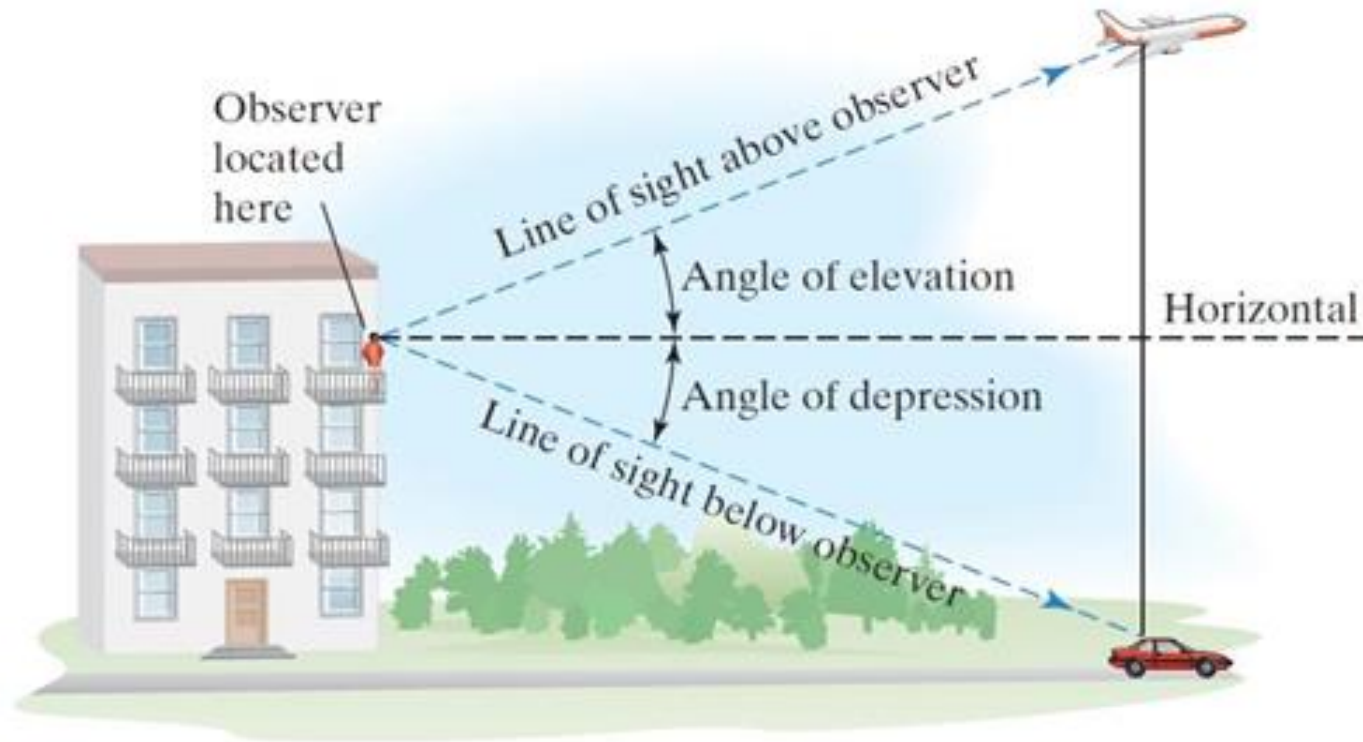


BOARD NOTES

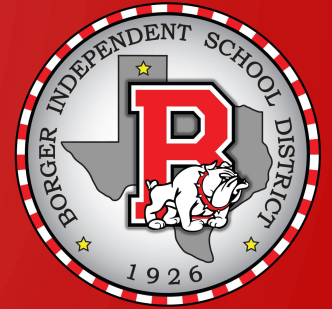
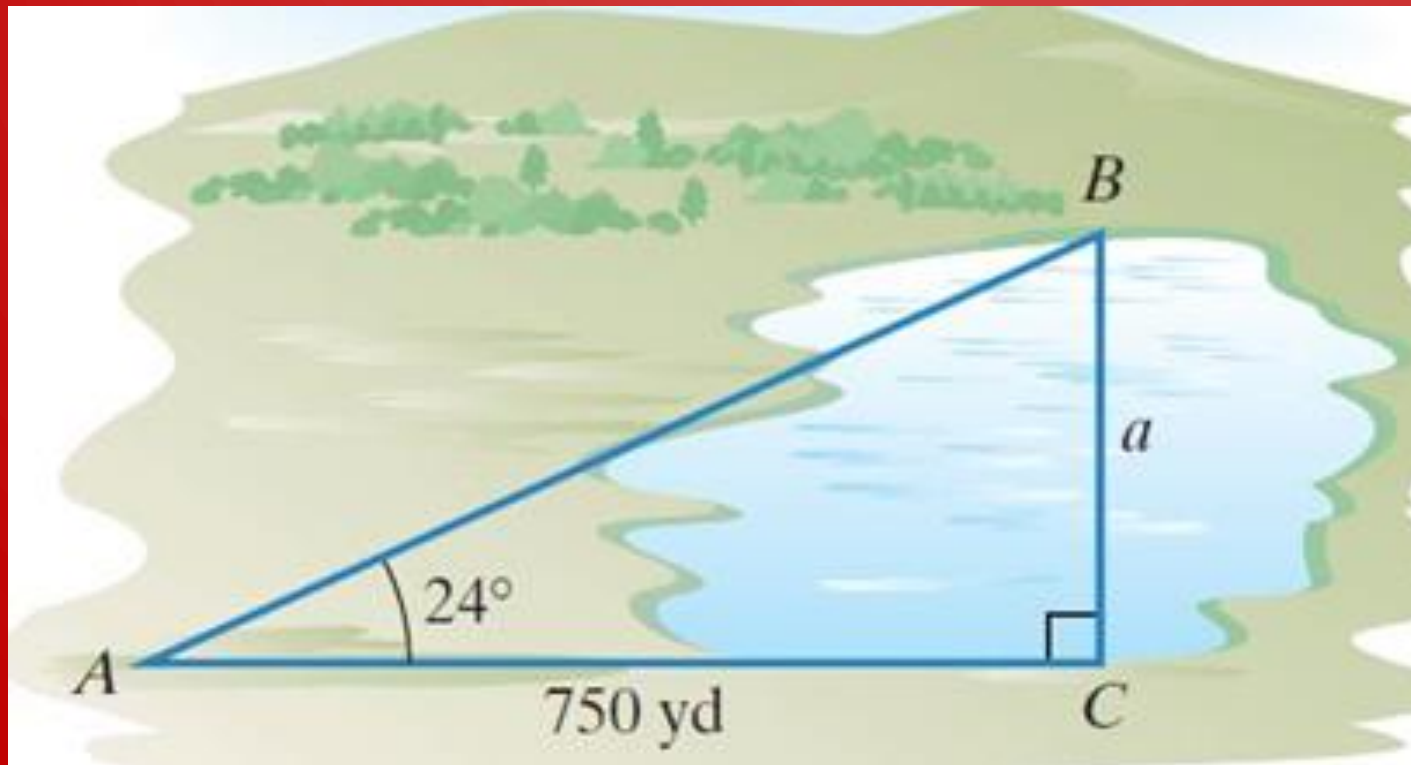
28 JANUARY 2019



An angle formed by a horizontal line and the line of sight to an object that is above the horizontal line is called the **angle of elevation**. The angle formed by the horizontal line and the line of sight to an object that is below the horizontal line is called the **angle of depression**.



The irregular blue shape in the figure represents a lake. The distance across the lake, a , is unknown. To find this distance, a surveyor took the measurements shown in the figure. What is the distance across the lake?





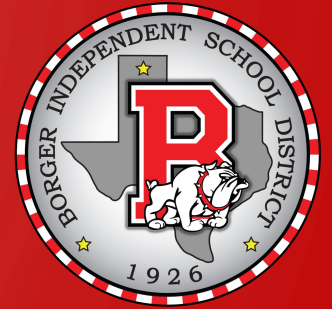
CC TRIGONOMETRY

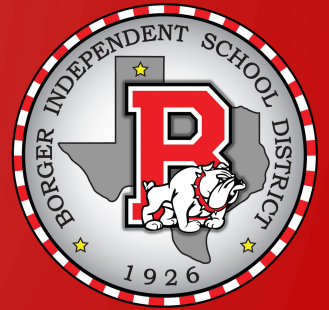
CHAPTER 1 ANGLES AND TRIGONOMETRIC FUNCTIONS

SECTION 1.3 - Trigonometric Functions of Any Angle

Objectives:

- Use the definitions of trigonometric functions of any angle
- Use the signs of the trigonometric functions
- Find reference angles
- Use reference angles to evaluate trigonometric functions



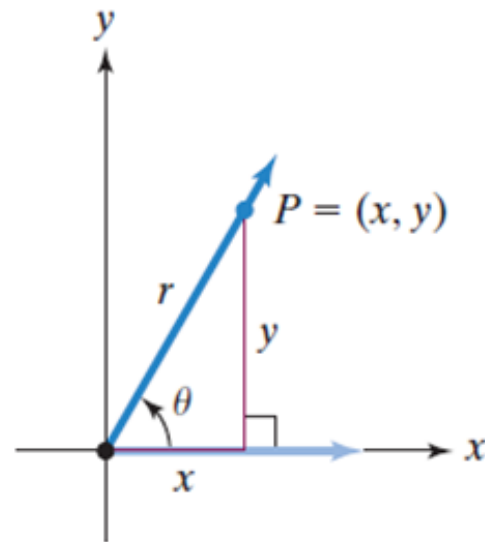


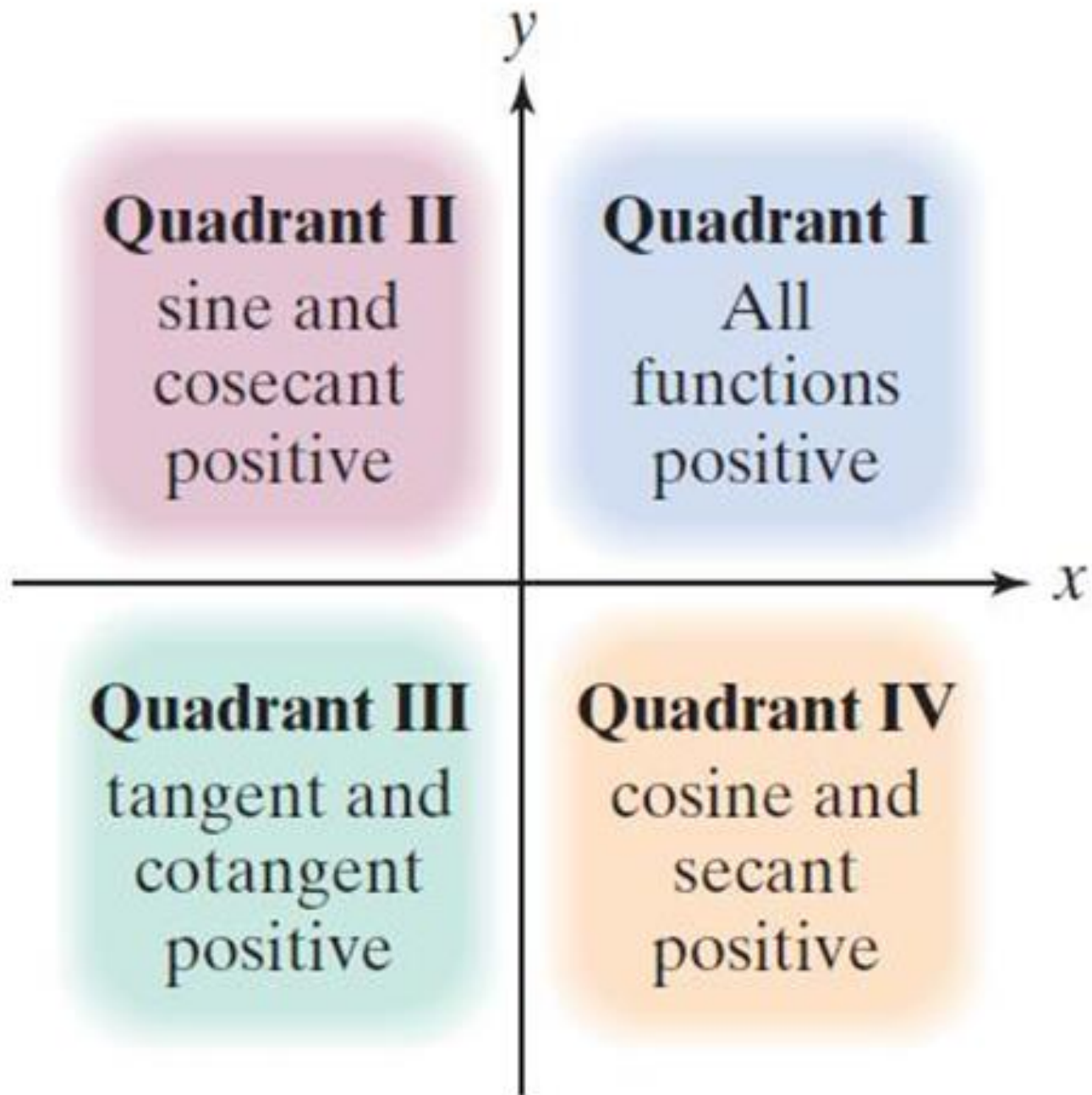
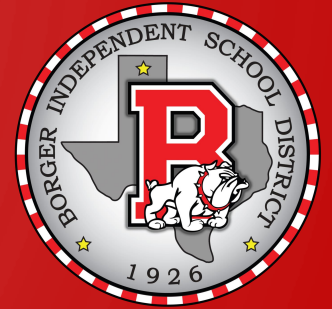
Let θ be any angle in standard position and let $P = (x, y)$ be a point on the terminal side of θ . If $r = \sqrt{x^2 + y^2}$ is the distance from $(0, 0)$ to (x, y) , the six trigonometric functions of θ are defined by the following ratios:

$$\sin \theta = \frac{y}{r} \qquad \csc \theta = \frac{r}{y}, y \neq 0$$

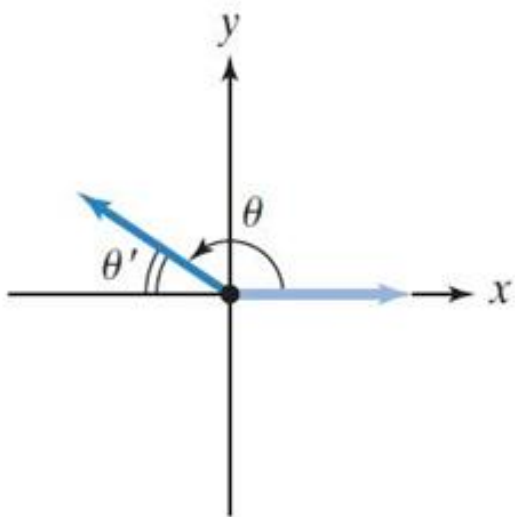
$$\cos \theta = \frac{x}{r} \qquad \sec \theta = \frac{r}{x}, x \neq 0$$

$$\tan \theta = \frac{y}{x}, x \neq 0 \qquad \cot \theta = \frac{x}{y}, y \neq 0$$

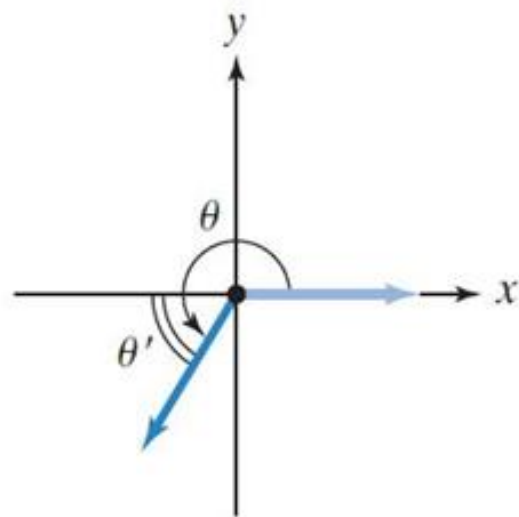




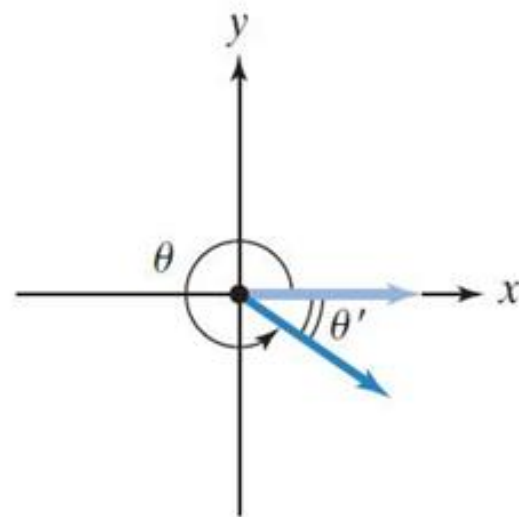
Let θ be a nonacute angle in standard position that lies in a quadrant. Its reference angle is the positive acute angle



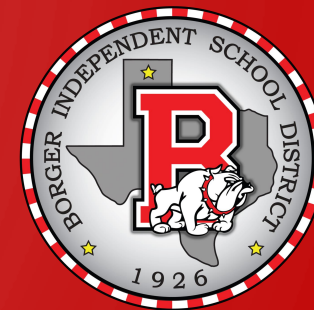
If $90^\circ < \theta < 180^\circ$,
then $\theta' = 180^\circ - \theta$.



If $180^\circ < \theta < 270^\circ$,
then $\theta' = \theta - 180^\circ$.



If $270^\circ < \theta < 360^\circ$,
then $\theta' = 360^\circ - \theta$.



$$\frac{\text{OPP}}{\text{ADJ}} = \frac{a}{750} = \tan 24^\circ$$

$$a = 334 \text{ yd}$$

Point P (-3, -5)
 $x = -3$ $y = -5$ $r = \sqrt{34}$

$$\sin \theta = -\frac{5\sqrt{34}}{34}$$

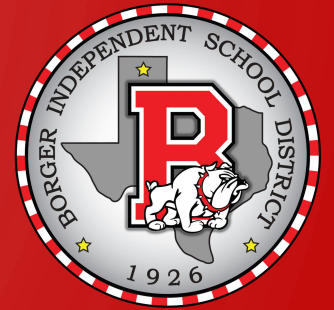
$$\cos \theta = -\frac{3\sqrt{34}}{34}$$

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

$$\csc \theta = -\frac{\sqrt{34}}{5}$$

$$\sec \theta = -\frac{\sqrt{34}}{3}$$

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



0	$\frac{\pi}{2}$	π	$\frac{3\pi}{2}$
0	-1	0	-1
-1	0	-1	0
0	0	0	0
0	1	0	1
1	0	1	0
0	0	0	0

$\begin{cases} \text{sine} \\ \text{cosec} \end{cases}$	ALL
(-,+)	(+,+)
(-, -)	(+, -)
$\begin{cases} \text{tane} \\ \text{cote} \end{cases}$	$\begin{cases} \text{cose} \\ \text{sece} \end{cases}$

$\tan \theta < 0$ $\cos \theta > 0$
 II IV I IV

IV

REF \angle

210°

$\frac{7\pi}{4}$

-240°

3.6

30°

$\frac{\pi}{6}$

80°

5

