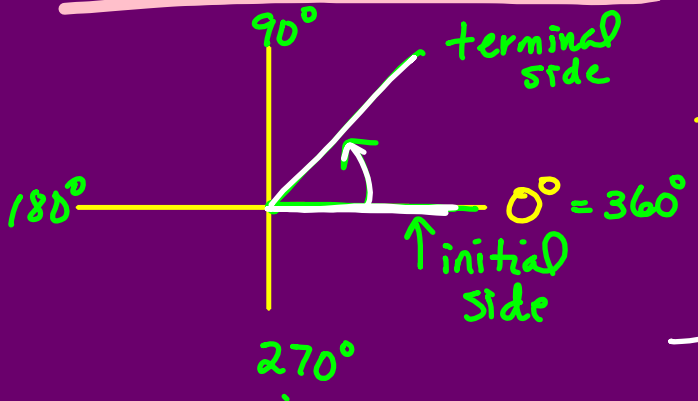
TRIGONOMETRY

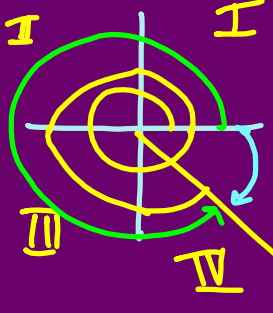
Trigonon – Triangle
Metry – Measure



Coterminal angles (Sec. 1.2)

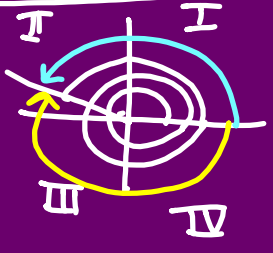
angles that share the same terminal side

670°
−360°
310



310°, −50°

880°
−720°
160°

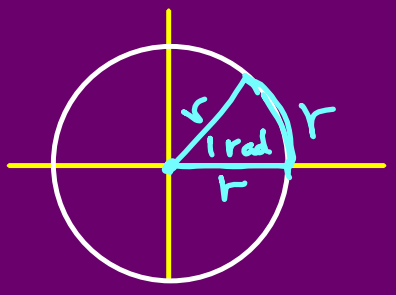


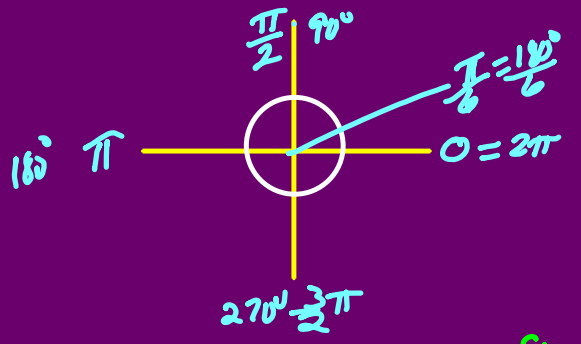
160°, −200°

360°
−160°
200

RADIANS (Sec. 3.1)

$60° \cdot 5\text{ cm} = 300$ deg-cm





$$\frac{1\text{ rad}}{r} = \frac{360°}{2\pi r}$$

$$\frac{2\pi r\text{ rad}}{r} = \frac{360°}{r}$$

$$2\pi\text{ rad} = 360°$$

$$\boxed{\pi\text{ rad} = 180°}$$

2π rad $\cdot$ 10 ft $= 20\pi$ ft.

Degrees → Rads

$\times \frac{\pi}{180°}$

$$140° \cdot \frac{\pi\text{ rad}}{180°}$$

$$= \frac{140}{180}\pi$$

$$= \frac{7\pi}{9}\text{ rads}$$

Radians → Degrees

$\times \frac{180°}{\pi}$

$$\frac{13\pi}{9} \cdot \frac{180°}{\pi} = 260°$$

May 9, 2025

Solving Right Δ's

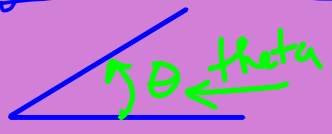
$\sin A = \frac{opp}{hyp}$

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

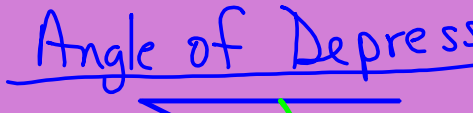
$\tan A = \frac{opp}{adj}$

soh cah toa

Angle of elevation

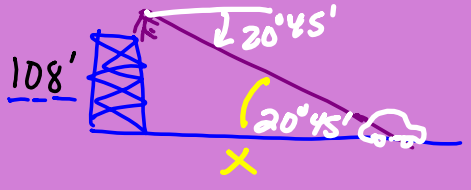


Angle of Depression



$1^\circ = 60'$ (min.)

$1' = 60''$ (sec.)



The angle of depression from the top of the tower to the car is is 20°45'. How far is the car from the base of the tower?

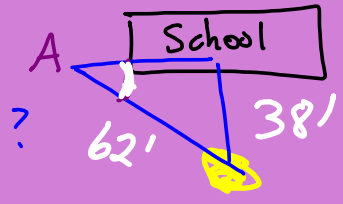
$\tan A = \frac{o}{a}$

$x \cdot \tan 20°45' = \frac{108}{x}$

$x = \frac{108}{\tan 20°45'}$

$x = 285$ ft.

A gold deposit has been located 38' directly under NCHS. If the length of the diagonal tunnel will be 62', what is the angle of depression?



$\sin A = \frac{38}{62}$

$\sin^{-1}(38/62) = 37°50'$

If need Deg/Min/Sec:
Book
Press "D"
▶ Dms

TRIG FUNCTIONS

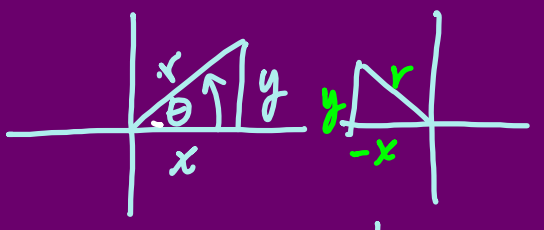
$\sin\theta = \frac{y}{r}$ your rotten $\quad \csc\theta = \frac{r}{y}$

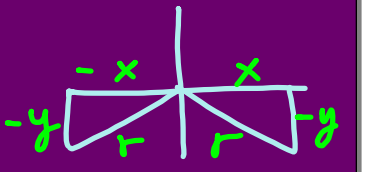
sin stick

$\cos\theta = \frac{x}{r}$ xylophone right $\quad \sec\theta = \frac{r}{x}$

cos crazy

$\tan\theta = \frac{y}{x}$ your through $\quad \cot\theta = \frac{x}{y}$





θ theta	
α alpha	
β beta	
γ gamma	
ϕ phi	
ω omega	

Star

$\frac{\sin\theta}{\csc\theta}$ +	All All +
$\frac{\tan\theta}{\cot\theta}$ +	$\frac{\cos\theta}{\sec\theta}$ +

Trig Class

Sec 1.4 What quadrant?

$\sin\theta > 0$ + $\cot\theta < 0$ −

II

$\sec\theta < 0$ $\csc\theta < 0$

$\sin\theta = \frac{y}{r}$ $\quad \csc\theta = \frac{r}{y}$

$\cos\theta = \frac{x}{r}$ $\quad \sec\theta = \frac{r}{x}$

$\tan\theta = \frac{y}{x}$ $\quad \cot\theta = \frac{x}{y}$

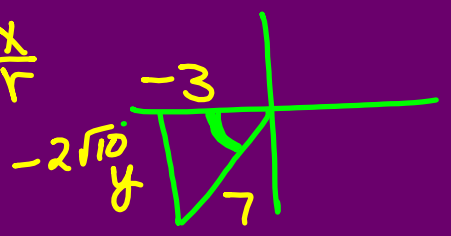
Angle 0 passes through the point (-2,5). Find sin 0.

Sin θ, csc θ	All
tan θ, cot θ	cos θ, sec θ

If $\cos\theta = \frac{-3}{7}$ $\left(\frac{-3}{7}\right)\left(\frac{x}{r}\right)$

+ $\cot\theta \geq 0$

find $\csc\theta$.



$\csc\theta = \frac{r}{y} = \frac{7 \cdot \sqrt{10}}{-2\sqrt{10} \cdot \sqrt{10}} = \boxed{\frac{-7\sqrt{10}}{20}}$

$y^2 + (3)^2 = 7^2$

$y^2 + 9 = 49$

$\sqrt{y^2} = \sqrt{40}$ 4·10

$y = \pm 2\sqrt{10}$

May 9, 2025