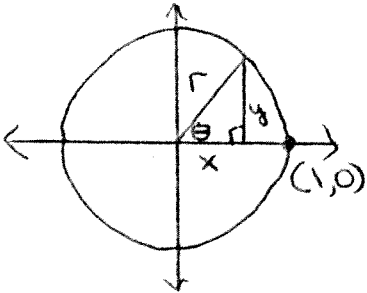


TRIG REVIEW

YOU ARE RESPONSIBLE FOR KNOWING ALL INFORMATION ON THESE SHEETS!

Unit circle



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

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

$$\csc \theta = \frac{1}{\sin \theta}$$

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

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

$$\sec \theta = \frac{1}{\cos \theta}$$

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

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

$$\cot \theta = \frac{1}{\tan \theta}$$

from $x^2 + y^2 = r^2$:

$$\div r^2 \quad \frac{x^2}{r^2} + \frac{y^2}{r^2} = 1$$

$$\div x^2 \quad 1 + \frac{y^2}{x^2} = \frac{r^2}{x^2}$$

$$\div y^2 \quad \frac{x^2}{y^2} + 1 = \frac{r^2}{y^2}$$

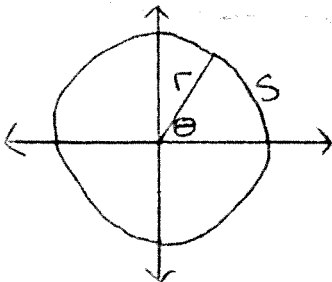
$$\ast \cos^2 \theta + \sin^2 \theta = 1$$

$$\ast 1 + \tan^2 \theta = \sec^2 \theta$$

$$\ast \cot^2 \theta + 1 = \csc^2 \theta$$

Radians

IN CALCULUS, RADIANS ARE ALWAYS USED, NOT DEGREES!!



$s =$ arc length

$$2\pi \text{ rad.} = 360^\circ$$

$$\theta = \frac{s}{r} \quad \text{or} \quad s = r\theta$$

$$\pi \text{ rad.} = 180^\circ$$

θ in radians!

$$\frac{180^\circ}{\pi} = 1 \text{ rad.}, \quad 1^\circ = \frac{\pi}{180^\circ}$$

KNOW THE TRIG. VALUES FOR $0, \frac{\pi}{6}, \frac{\pi}{4}, \frac{\pi}{3}, \frac{\pi}{2}$ AND THEIR MULTIPLES.

REMEMBER REFERENCE ANGLES AND ALL STUDENTS TAKE CALCULUS.

$$\sin(-x) = -\sin x$$

$$\cos(-x) = \cos x$$

$$\tan(-x) = -\tan x$$

$$\csc(-x) = -\csc x$$

$$\sec(-x) = \sec x$$

$$\cot(-x) = -\cot x$$

cosine and secant are even functions, the rest are odd functions

Graphing

Be able to graph all trig. functions, including cosecant, secant, and cotangent.

$$y = A (\sin \text{ or } \cos) [B(x - C)] + D$$

$|A|$ is the amplitude.

$\frac{2\pi}{|B|}$ is the period.

$|B|$

C is the horizontal shift.

D is the vertical shift.

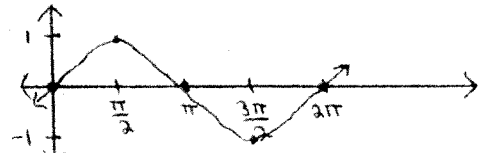
For $\tan x$, everything is the same, except the period is $\frac{\pi}{|B|}$ and there is no amplitude.

$|B|$

A negative A flips the graph around the x-axis.

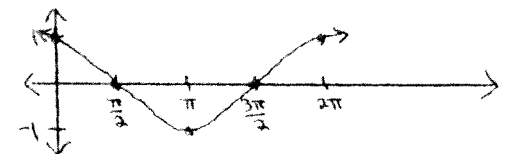
D: $x \in \mathbb{R}$
R: $|y| \leq 1$
amp = 1
Per = 2π

$$y = \sin x$$



D: $x \in \mathbb{R}$
R: $|y| \leq 1$
amp = 1
Per = 2π

$$y = \cos x$$



D: $x \neq \frac{\pi}{2} + k\pi$
R: $x \in \mathbb{R}$
amp - none
Per = π

$$y = \tan x$$

