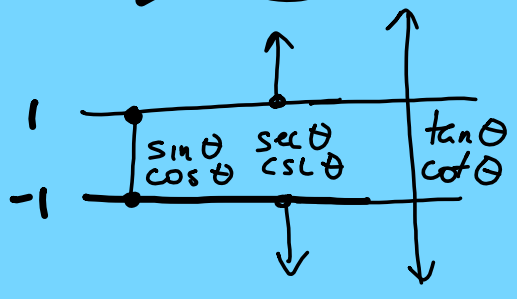
April 17, 2023

TRIG SEMESTER REVIEW



Deg → Rads * $\frac{\pi}{180^\circ}$

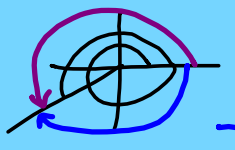
$330^\circ \cdot \frac{\pi}{180} = \frac{330}{180}\pi = \frac{11\pi}{6}$

Rads → Deg * $\frac{180^\circ}{\pi}$

$\frac{11\pi}{9} \cdot \frac{20\,180^\circ}{\pi} = 220^\circ$

3) Coterminal angles - Share same terminal side.

560°



200°

-160°

4) All Star Trig Class.

5) Draw pic. - Use stick your rotten.....

Arc Length

$s = r\theta$

Angular Velocity

$\omega = \frac{\theta}{t}$

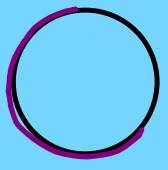
$\frac{rad}{sec}, \frac{rad}{min}$

Linear Velocity

$v = \frac{s}{t} = \frac{r\theta}{t} = r\omega$

$\frac{cm}{sec}, \frac{mi}{h}$

must be in Rads



diameter = 6 ft

Move it 20 ft. = s

How much in rotation (in degrees)

$s = r\theta$

$20 = 3\theta$

$\frac{20}{3}\text{ rad} = \theta$

$\frac{20}{3}\text{ rad} \cdot \frac{180^\circ}{\pi} = \theta$

$\frac{(200^\circ}{\pi} = \theta$

$382^\circ = \theta$

The tractor time is completing 20 rotations per minute? How fast is the tractor moving in mph?

$v = \frac{r\theta}{t} = \frac{3' \cdot 20 \cdot 2\pi}{1\text{ min}}$

$= 377 \frac{\cancel{ft}}{min} \cdot \frac{1\text{ mi}}{5280\ \cancel{ft}} \cdot \frac{60\text{ min}}{1\text{ hr}} =$

11) May use soh cah toa, Law of sines or cosines

12/ Special Angle Values

$$\frac{\csc 150^\circ - \tan^2(-120^\circ)}{\sec \frac{5\pi}{6} \cdot \sin \frac{11\pi}{4}} + 2 - (\sqrt{3})^2$$

$$= \frac{2-3}{-\frac{2}{\sqrt{3}} \cdot \frac{\sqrt{2}}{2}} = \frac{-1}{-\frac{\sqrt{2}}{\sqrt{3}}}$$

$$= \frac{\sqrt{3}}{\sqrt{2}} \cdot \frac{\sqrt{3}}{\sqrt{2}}$$

$$= \frac{\sqrt{6}}{2}$$

14/15

1) Write identity
2) Draw pic(s)
3) Fill in values.

Find $\tan 2x$ given $\sec x = -\frac{13}{12}$ & $\frac{\pi}{2} < x < \pi$.

$$\tan 2x = \frac{2\tan x}{1-\tan^2 x}$$

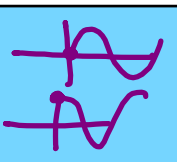
$$= \frac{2 \cdot -\frac{5}{12}}{1-\left(-\frac{5}{12}\right)^2} = \frac{-\frac{5}{6}}{\frac{144}{144} - \frac{25}{144}}$$

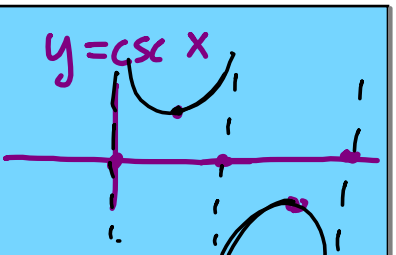
$$= \frac{-\frac{5}{6}}{\frac{119}{144}} = -\frac{5}{6} \cdot \frac{24}{119}$$

$$= -\frac{120}{119}$$

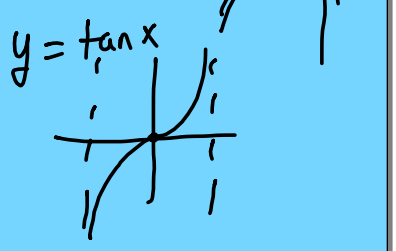
TRIG GRAPHS

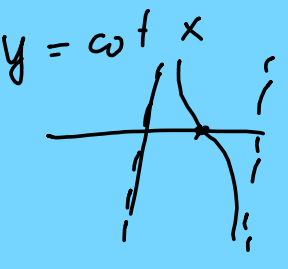
$y = \sin x$
$y = \cos x$





$y = a \_\_\_\_ (bx+c) + d$





	sin / cos	sec / csc	tan / cot
amp	$\lvert a \rvert$	NA	NA
period	$\frac{2\pi}{b}$	$\frac{2\pi}{b}$	$\frac{\pi}{b}$
p.s. (horiz shift)	$bx+c=0$	$bx+c=0$	$bx+c=0$
V.S.	d	d	d

Given graph, write eq.

1) List amp per p.s. V.S.

$\frac{3\pi}{2}$

$per = \frac{2\pi}{b}$

$b = \frac{2\pi}{per.}$

$y = 2\sec(3x-\pi)+1$ (cos)

amp: NA (2)

per: $\frac{2\pi}{3}$

p.s.: $3x-\pi=0$, $x=\pi/3$

v.s.: 1

spacing per. $\frac{1}{4}$: $\frac{2\pi}{3}\cdot\frac{1}{4}=\frac{\pi}{6}$

p.s. $\pi/3$, $\frac{3\pi}{6}$, $\frac{4\pi}{6}$, $\frac{5\pi}{6}$, $\frac{6\pi}{6}$

ten -- $\frac{7\pi}{6}$ --