Intro to Trig Review

1a) $-210°$

2) $\sin(-\theta) = -\sin\theta$

$\cos(-\theta) = \cos\theta$
$\sec(-\theta) = \sec\theta$

$\tan\theta = -\frac{5}{8}$

$\cot(+\theta) = +\frac{8}{5}$

4/ possible/Impossible

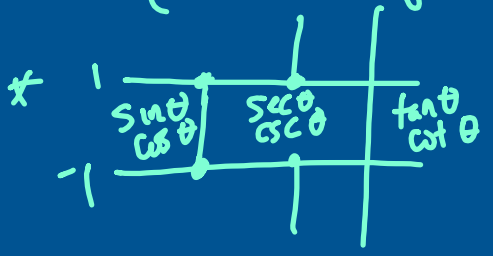
$5\csc\theta - 1 = 3$

$\frac{5\csc\theta}{5} = \frac{4}{5}$

Imp.

To Know:

* Definitions of all 6 trig func. in terms of x, y, r. (Stick your. . . . .)
* Positive Quadrants (All Star Trig Class)

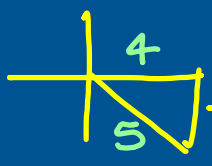


* $\sin\theta, \cos\theta, \tan\theta$ with opp, adj, hyp
* Special angle table

5-7 DRAW the Picture!

$\cos\theta = \frac{4}{5}$ $\tan\theta < 0$,

find $\csc\theta$



$16 + y^2 = 25$

$\sqrt{y^2} = \sqrt{9}$

$y = \pm 3$

$\csc\theta = \frac{r}{y} = \boxed{\frac{5}{-3}}$

Cofunction

Complementary

$\sec 27^\circ 14' = \csc 62^\circ 46'$

$89^\circ\ 60'$
$27^\circ\ 14'$
$62^\circ\ 46'$

Special Angles – Most points!

Convert deg ⇄ rads $\quad \pi = 180^\circ$

Convert $\frac{11\pi}{9}$ rad to deg

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

January 17, 2023

Arc Length $S = r\theta$ | **Area of Sector** $A = \frac{1}{2}\theta r^2$ | **Angular Vel** (center) $\omega = \frac{\theta}{t}$ | **Linear Vel** (to edge) $V = \frac{S}{t} = \frac{r\theta}{t} = r \cdot \omega$

All must be in radians.

Fan turns $500 \frac{\text{rev.}}{\text{min.}}$ blade = 10 in.

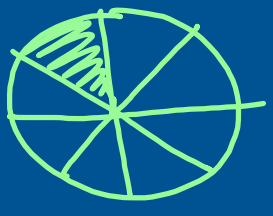
How fast is center turning? $\omega = \frac{\theta}{t} = \frac{500 \cdot 2\pi}{1 \text{ min}}$

$= 1000\pi \frac{\text{rad}}{\text{min}}$

How fast is fly at end moving?

$V = 10 \cdot 1000\pi = 10{,}000\pi = 31{,}416 \frac{\text{in}}{\text{min}}$

$31{,}146 \frac{\text{in}}{\text{min}} \cdot \frac{1 \text{ ft}}{12 \text{ in}} \cdot \frac{1 \text{ mi}}{5280 \text{ ft}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} = 30 \frac{\text{mi}}{\text{h}}$



diameter = 12 in. $\theta = \frac{360°}{8} = \frac{2\pi}{8} = \frac{\pi}{4}$

$A = \frac{1}{2}\theta r^2$

$A = \frac{1}{2}\left(\frac{\pi}{4}\right)(6)^2 = \frac{36\pi}{8} = 14 \text{ in}^2$

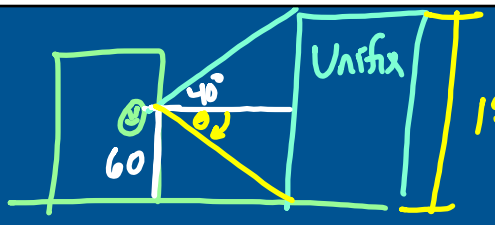
Quesadilla

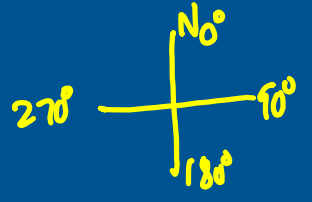
Diameter 6 in.

$S = r\theta$

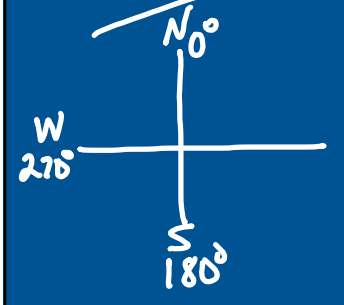
$= 3 \cdot \frac{4\pi}{5} = 7.5$ in.

23





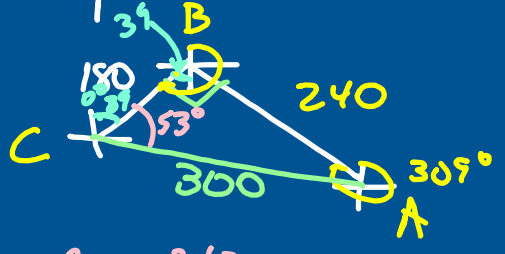
Navigation



Plane flies 240 mi. N direction 309°

Turns flies 180 mi in direction 219°

In what direction & for what distance must plane travel to return home.



$39° + 53° = 92°$

$\tan C = \frac{240}{180}$

$C = \tan^{-1}(240/180)$

$C = 53.1°$

$\approx 53°$

$180^2 + 240^2 = x^2$

$= x^2$

$\sqrt{\quad} = x$

$300 = x$

300 mi @ 92°