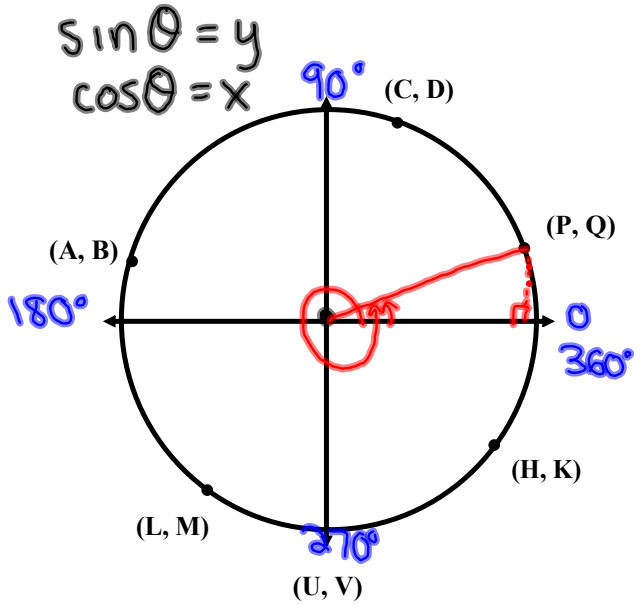
Questions from Homework!!!



sin 330° = K

cos 270 = U

sin 170 = B

cos 240 = L

sin 80 = D

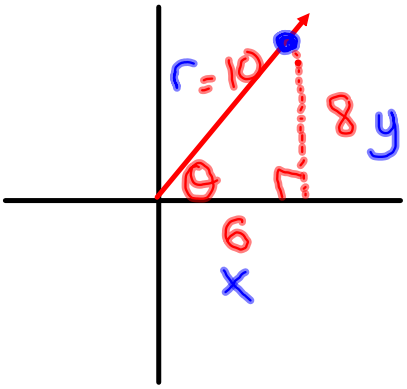
cos 330 = H

sin 30 = Q

cos 390 = P

Warm Up

The ordered pair (6, 8) lies on the terminal arm of an angle.
Determine the 6 trig ratios of this angle



$$\sin\theta = \frac{y}{r} \quad \csc\theta = \frac{r}{y}$$
$$\cos\theta = \frac{x}{r} \quad \sec\theta = \frac{r}{x}$$
$$\tan\theta = \frac{y}{x} \quad \cot\theta = \frac{x}{y}$$

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

$36 + 64 = r^2$

$100 = r^2$

$10 = r$

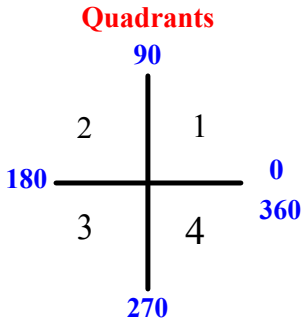
$\sin\theta = \frac{8}{10} = \frac{4}{5}$ $\quad \csc\theta = \frac{5}{4}$

$\cos\theta = \frac{6}{10} = \frac{3}{5}$ $\quad \sec\theta = \frac{5}{3}$

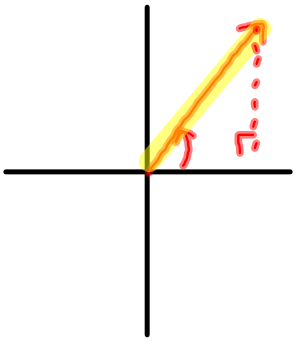
$\tan\theta = \frac{8}{6} = \frac{4}{3}$ $\quad \cot\theta = \frac{3}{4}$

Sketching Angles

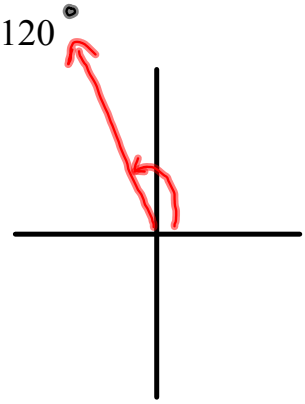
If the angle is positive rotate counterclockwise. If the angle is negative rotate clockwise .What do you notice about "a" and "d"?



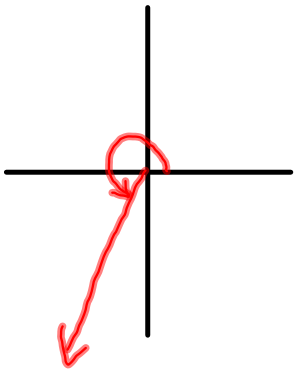
a) 50°



b) 120°



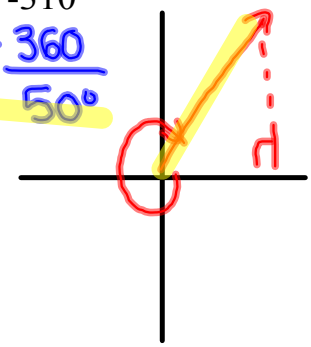
c) 240°



d) -310°

+360

50°



Coterminal Angles

Angles that share the same terminal side/terminal arm are said to be coterminal

To find other coterminal angles we can use the following formula:

$$A_c = A + k * 360$$ **where k is a constant ex. 2, 3, -2, etc.**

Find an angle coterminal to 50

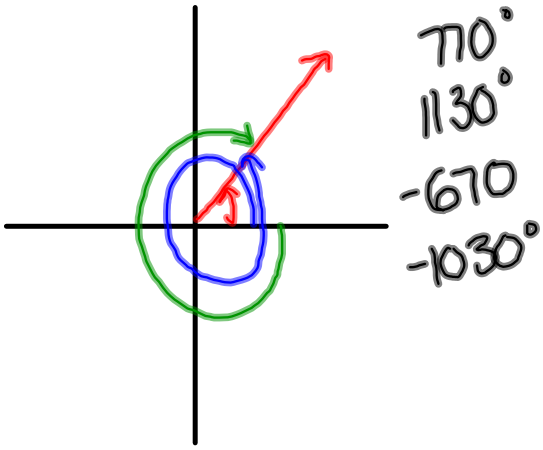
$A_c = 50 + 360(1)$

$= 410°$

$A_c = 50 + 360(-1)$

$= 50 - 360$

$= -310°$



Principal Angles → smallest positive coterminal angle between 0 and 360°

Ex: 13784° Think about unwinding this angle

1) **Divide By 360 (how many rotations??)** $13784 \div 360 = 38.2\overline{8}$
2) **Get rid of # of full rotations** $38.2\overline{8} - 38 = 0.2\overline{8}$
3) **Mulitply decimal by 360 to find principal angle** $0.2\overline{8} \times 360 = 104°$

Try These!

139275°

$139275° \div 360 = 386.875$
$386.875 - 386 = 0.875$
$0.875 \times 360 = 315°$

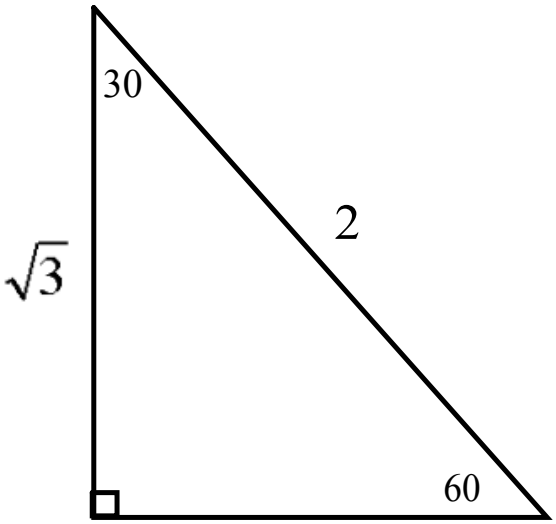
-27342°

$-27342 \div (-360) = 75.95$
$75.95 - 75 = 0.95$
$0.95 \times 360 = 342°$

Special Angles

I. 30° *and* 60°

MEMORIZE THESE DIAGRAMS!!!

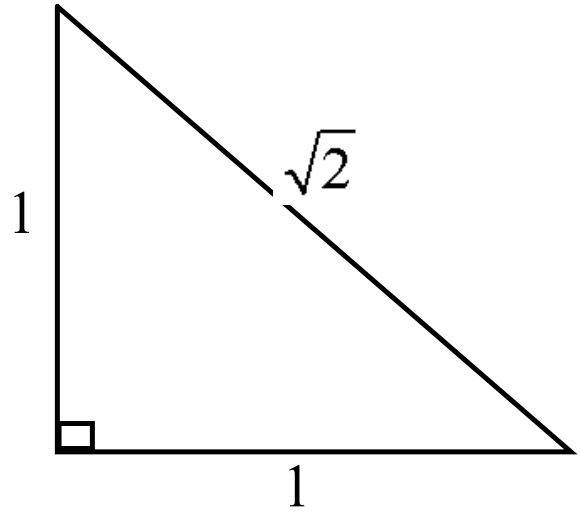


	30	60
Sin		
Cos		
Tan		

Special Angles

II. 45°

MEMORIZE THESE DIAGRAMS!!!

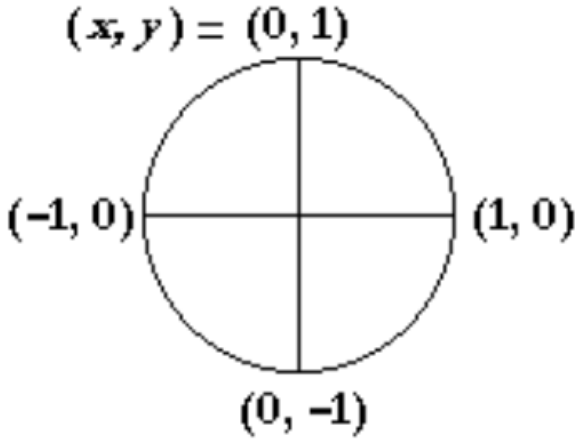


	45
Sin	
Cos	
Tan	

MEMORIZE THESE DIAGRAMS!!!

III. Quadrantal Angles (Multiples of 90^o)

Unit Circle



	0^0	90^0	180^0	270^0	360^0
sin	0	1	0	-1	0
cos	1	0	-1	0	1
tan	0	undefined	0	undefined	0