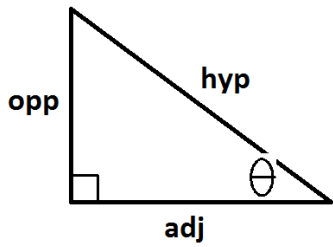


# Unit 7 Bare Necessities - Trig



## Right Triangle Trig



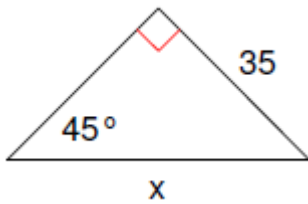
$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

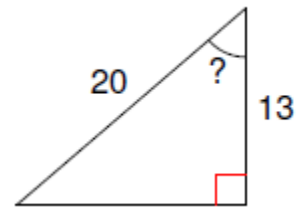
$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

All Together!!

EX1.

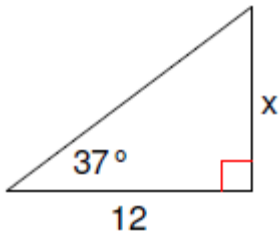


EX2.

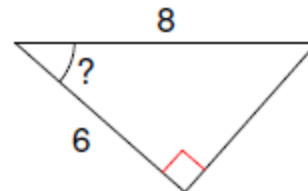


You Try!!

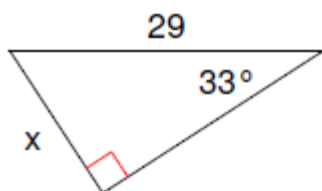
1.



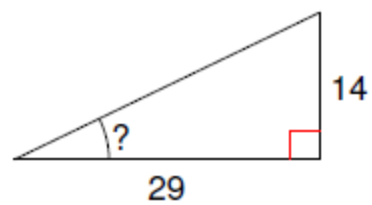
2.



3.



4.



## Convert Between Radians and Degrees

\*\*conversion factor:  $180^\circ = \pi$  radians

### All Together!!

EX3. Convert to degrees:  $\frac{3\pi}{8}$

EX4. Convert to radians:  $400^\circ$

### You Try!!

*Convert to degrees.*

5.  $\frac{\pi}{9}$

6.  $\frac{7\pi}{3}$

7.  $5\pi$

*Convert to radians.*

8.  $125^\circ$

9.  $90^\circ$

10.  $390^\circ$

## Coterminal Angles

\*\* +/-  $360^\circ$  if in degrees

### All Together!!

EX5.  $1270^\circ$

EX6.  $-\frac{12\pi}{5}$

### You Try!!

*Give the coterminal angle between  $0^\circ$  and  $360^\circ$ .*

11.  $-620^\circ$

12.  $\frac{9\pi}{4}$

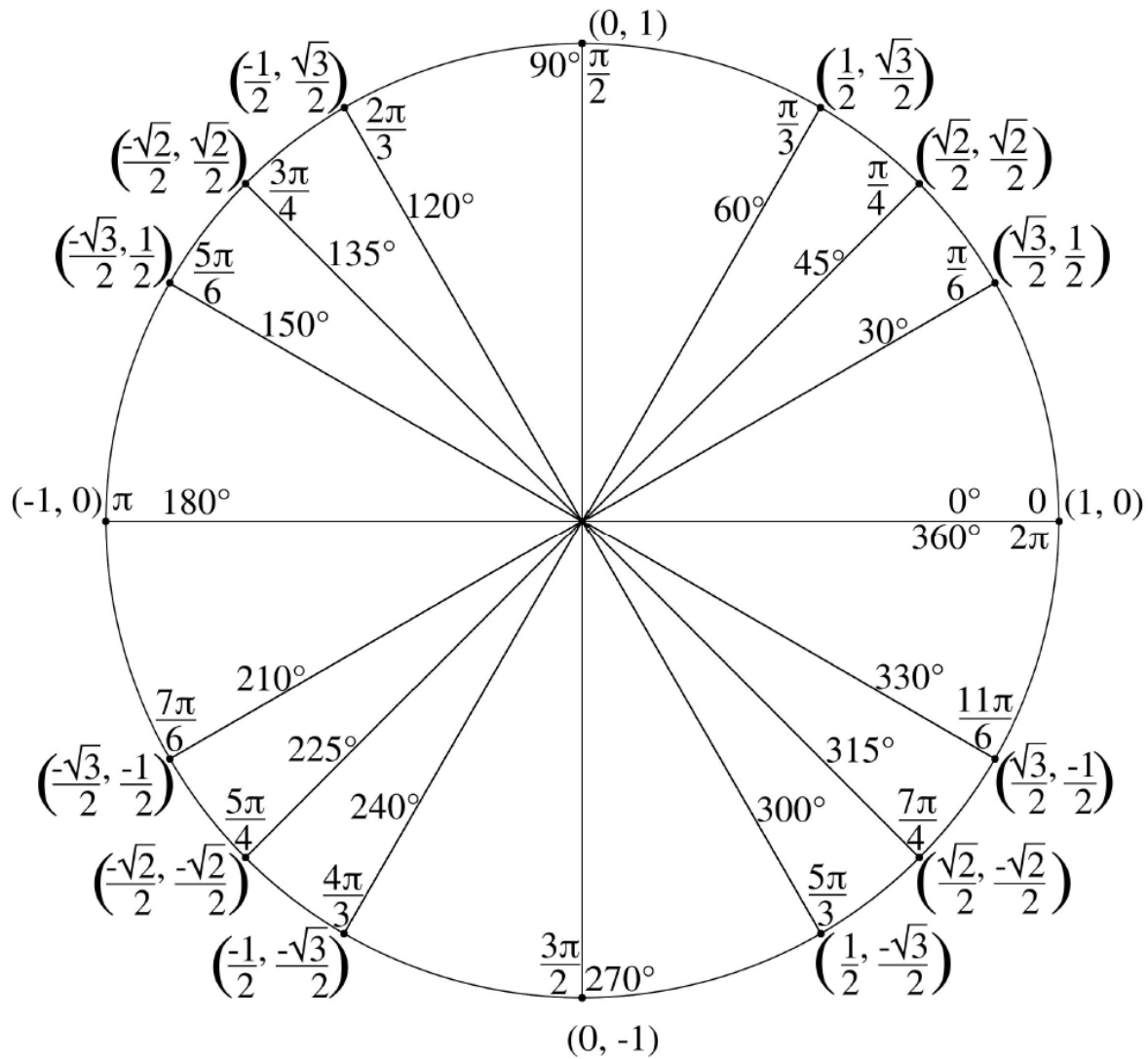
13.  $4000^\circ$

# Exact Values of Trig Ratios

cosine = x-coordinate

sine = y-coordinate

tangent =  $y \div x$



**All together!!**

EX7.  $\sin 300^\circ$

EX8.  $\cos -225^\circ$

EX9.  $\tan 120^\circ$

**You try!!**

14.  $\cos 210^\circ$

15.  $\sin 765^\circ$

16.  $\tan 240^\circ$

17.  $\sin 180^\circ$

18.  $\tan -225^\circ$

19.  $\cos 300^\circ$

## Equations of Sine and Cosine

$$y = a \cdot \sin(bx) + d$$

$$\text{amplitude} = |a|$$

$$\text{period} = \frac{2\pi}{b}$$

$$y = a \cdot \cos(bx) + d$$

$$\text{vertical shift} = +d \text{ up, } -d \text{ down}$$

### All Together!!

$$\text{EX10. } y = -3\cos 6x + 2$$

### You Try!!

$$20. y = \sin 5x - 3$$

$$21. y = -3\sin \frac{1}{4}x + 10$$

$$22. y = 2\cos x$$

$$23. y = -5\sin 4x - 3$$