

Quiz time!



## Warm-up

Start working on your task from yesterday. You will be given only 5 minutes to complete once the bell rings.

# Evaluating Trig Functions Using the Unit Circle

# Trigonometric Ratios

Name	Ratio	Expression
Sine	O / H	$\sin\theta$
Cosine	A / H	$\cos\theta$
Tangent	O / A	$\tan\theta$

Name	Ratio	Expression
Cosecant	H / O	$\csc\theta$
Secant	H / A	$\sec\theta$
Cotangent	A / O	$\cot\theta$

Reciprocal functions:

$$\sin A =$$

Generally what are the values of the following on a Unit circle\* in relation to the coordinates?

$$\sin \theta = y$$

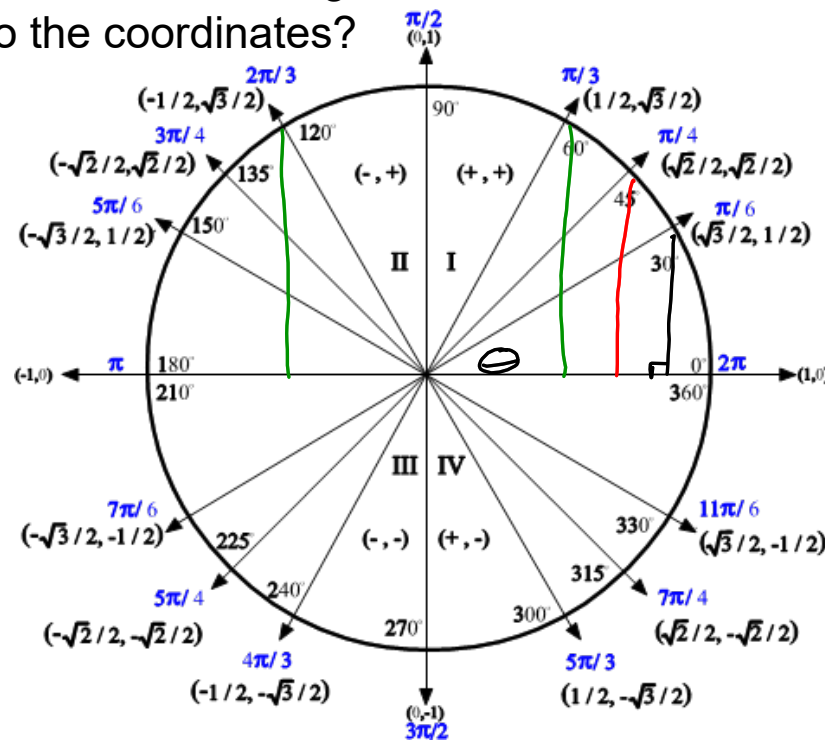
$$\cos \theta = x$$

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

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

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

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

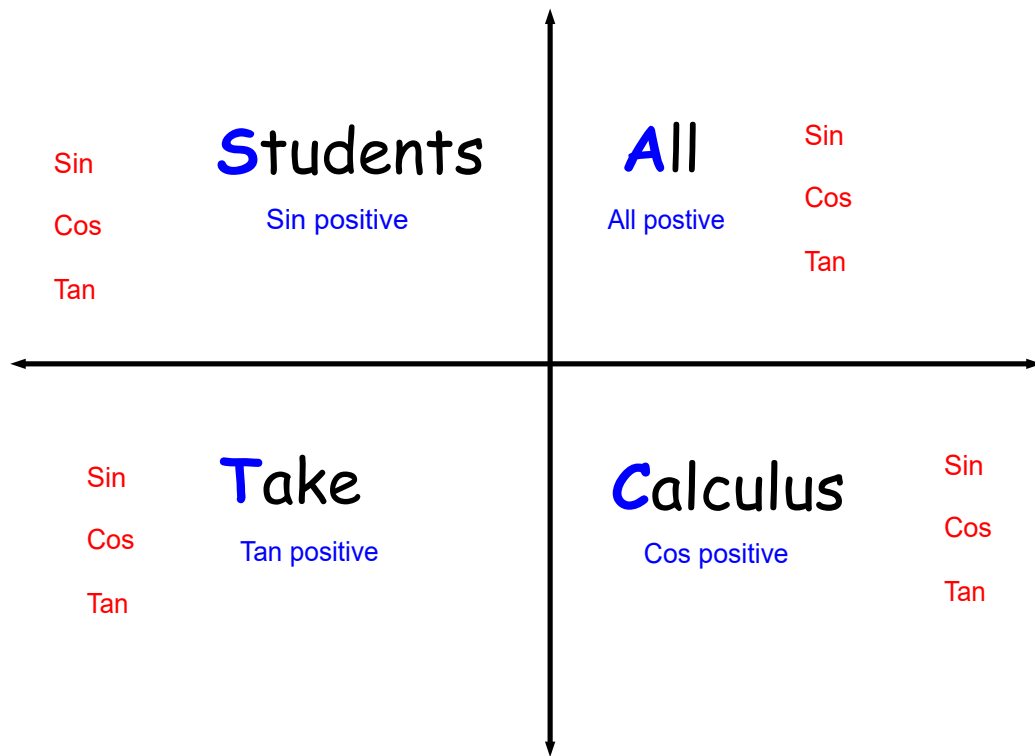


In what quadrants is sine positive?

Cosine?

Tangent?

Reciprocal functions?



	0°	30°	45°	60°	90°
sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
tan	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	undef.
csc	undef.	2	$\sqrt{2}$	$\frac{2\sqrt{3}}{3}$	1
sec	1	$\frac{2\sqrt{3}}{3}$	$\sqrt{2}$	2	undef.
cot	undef.	$\sqrt{3}$	1	$\frac{\sqrt{3}}{3}$	0

$$\begin{aligned}
 & \frac{1}{\frac{\sqrt{2}}{2}} \\
 & 1 \cdot \frac{2}{\sqrt{2}} = \frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} \\
 & = \frac{2\sqrt{2}}{2} \\
 & = \sqrt{2}
 \end{aligned}$$



Name all of the angles who share  
the same reference angle:

30° family: 150° 210° 330°

$\pi/6$  family: \_\_\_\_\_

60° family: \_\_\_\_\_

$\pi/3$  family: \_\_\_\_\_

45° family: \_\_\_\_\_

$\pi/4$  family: \_\_\_\_\_

To Evaluate a trig function:

- Determine what **quadrant** the angle is in.
- Determine the **reference angle**.
- **Evaluate** the trig function for the **corresponding reference angle** and determine if it's positive or negative based on the quadrant.

$$\sin 225^\circ = -\frac{\sqrt{2}}{2}$$

$$\tan 330^\circ = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{\sqrt{3}}{3}$$

$$\cos 2\pi/3 = -\frac{1}{2}$$

$$\tan 7\pi/4 =$$

$$\cos 4\pi/3 =$$

$$\sin 5\pi/6 =$$

$$\sec 3\pi/4 =$$

$$\csc \pi =$$

$$\cot 5\pi/4 =$$

If the angle doesn't have a reference angle of 0, 30, 45, 60 or 90, then evaluate using your calculator:

$$\sin 47^\circ$$

$$\cos \pi/5$$

$$\tan 152^\circ$$

$$\sec 23^\circ$$

$$\cot 339^\circ$$

$$\csc 3\pi/7$$

1.  $\frac{1}{2}$

3.  $\frac{-\sqrt{2}}{2}$

5.  $\frac{\sqrt{3}}{2}$

7.  $-\frac{1}{2}$

9. und.

11.  $\frac{\sqrt{2}}{2}$

13.  $\frac{2\sqrt{3}}{3}$

15.  $\sqrt{3}$

17. und.

19.  $\sqrt{3}$

21.  $-2$

23.  $2$



1.  $\frac{1}{2}$

3.  $-\frac{\sqrt{2}}{2}$

5.  $-\frac{\sqrt{3}}{2}$

7.  $\frac{-\sqrt{3}}{2}$

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

11.  $\frac{\sqrt{2}}{2}$

13.  $\frac{1}{\frac{1}{2}} = 2$

15.  $\frac{\sqrt{3}}{\frac{1}{3}}$

17.  $\frac{1}{0} = \text{undef}$

19.  $= \frac{\sqrt{3}}{3}$

21.  $\frac{1}{\frac{-\sqrt{3}}{2}} = -\frac{2\sqrt{3}}{3}$

23.  $\frac{1}{1/2} = 2$

given  $(2, 3)$   
Find all  $\theta$  trig

$$2^2 + 3^2 = c^2$$

