

Lesson 22  
11.16.15  
Trig Functions  
Warm-up

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$$1) \frac{1}{2} \cdot \frac{3}{4} =$$

$$2) \frac{2}{3} \div \frac{4}{5} =$$

$$3) \frac{3}{6} \div 5 =$$

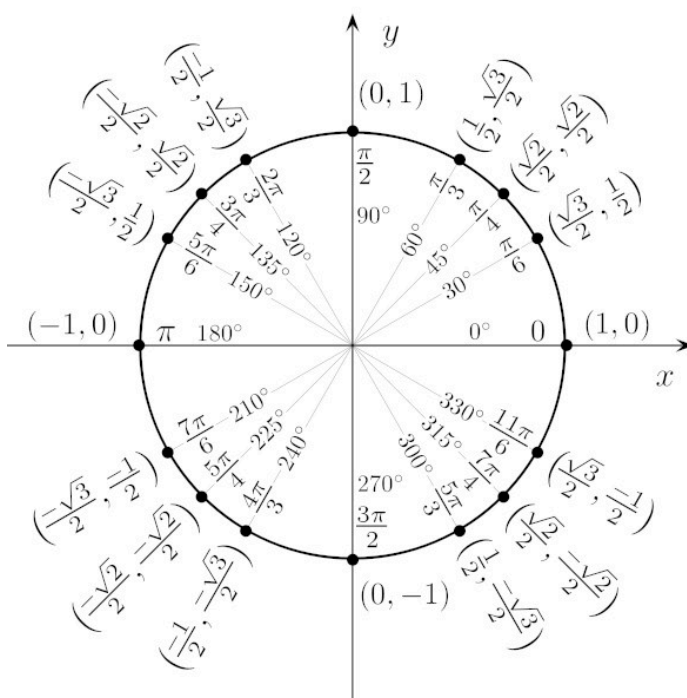
$$4) 5 \div \frac{1}{2} =$$

I do:

Use the unit circle to find the exact value of each trigonometric function.

- 1)  $\sin 210^\circ$
- $\cos 210^\circ$
- $\tan 210^\circ$

Find the coordinates for the angle on the unit circle.



$$\left(-\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$$

$$\begin{aligned} \sin \theta &= y \\ \cos \theta &= x \\ \tan \theta &= \frac{y}{x} \end{aligned}$$

$$\begin{aligned} \sin 210^\circ &= y = -\frac{1}{2} \\ \cos 210^\circ &= x = -\frac{\sqrt{3}}{2} \end{aligned}$$

$$\begin{aligned} \tan 210^\circ &= \frac{y}{x} = -\frac{1}{2} \div -\frac{\sqrt{3}}{2} = \\ &= -\frac{1}{2} \cdot \left(-\frac{2}{\sqrt{3}}\right) = \frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3} \end{aligned}$$

We try:

Use the unit circle to find the exact value of each trigonometric function.

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

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

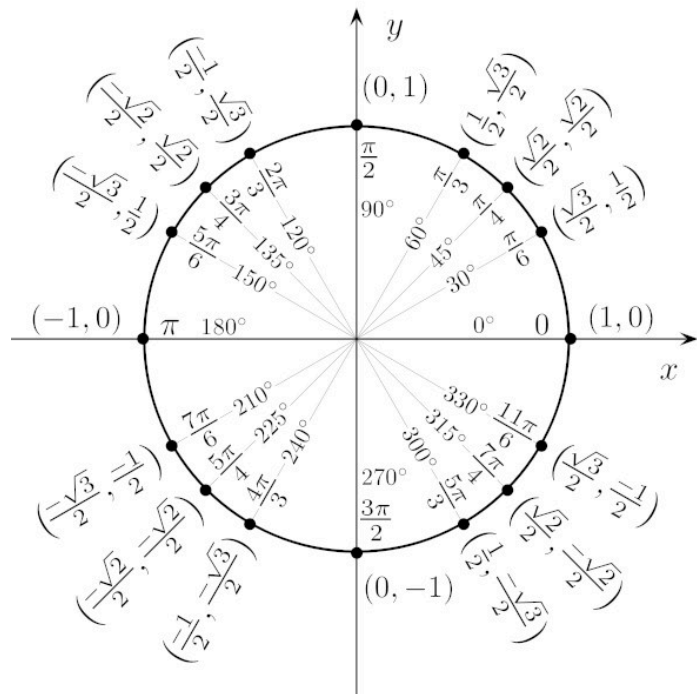
$$\tan \frac{2\pi}{3}$$

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

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

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

Find the coordinates for the angle on the unit circle.



$$\sin \theta = y$$

$$\cos \theta = x$$

$\tan\theta = \frac{y}{x}$	
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You Try:

Even Write, Odd Talk

Use the unit circle to find the exact value of each trigonometric function.

$$\sin 90^\circ$$

$$\cos 90^\circ$$

$$\tan 90^\circ$$

I do:

Given point  $(-3,4)$ , find the 6 trig functions for  $\theta$ .

Plot the point and ray that forms and create the right triangle.	
Solve for the missing side.	
Use the trig functions to find values. $\sin\theta = \frac{opp}{hyp}$ $\csc\theta = \frac{hyp}{opp}$ $\cos\theta = \frac{adj}{hyp}$ $\sec\theta = \frac{hyp}{adj}$ $\tan\theta = \frac{opp}{adj}$ $\cot\theta = \frac{adj}{opp}$	$\sin\theta =$ $\csc\theta =$ $\cos\theta =$ $\sec\theta =$ $\tan\theta =$ $\cot\theta =$

We do:

Given point  $(1, -2)$ , find the 6 trig functions for  $\theta$ .

Plot the point and ray that forms and create the right triangle.	
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Solve for the missing side.	
Use the trig functions to find values. $\sin\theta = \frac{opp}{hyp}$ $\csc\theta = \frac{hyp}{opp}$ $\cos\theta = \frac{adj}{hyp}$ $\sec\theta = \frac{hyp}{adj}$ $\tan\theta = \frac{opp}{adj}$ $\cot\theta = \frac{adj}{opp}$	$\sin\theta =$ $\csc\theta =$ $\cos\theta =$ $\sec\theta =$ $\tan\theta =$ $\cot\theta =$

You do with your partner.

Right Talk, Left Write.

Given point  $(-6,6)$ , find the 6 trig functions for  $\theta$ .

Plot the point and ray that forms and create the right triangle.	
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Solve for the missing side.	
<p>Use the trig functions to find values.</p> $\sin\theta = \frac{opp}{hyp} \quad \csc\theta = \frac{hyp}{opp}$ $\cos\theta = \frac{adj}{hyp} \quad \sec\theta = \frac{hyp}{adj}$ $\tan\theta = \frac{opp}{adj} \quad \cot\theta = \frac{adj}{opp}$	$\sin\theta =$ $\csc\theta =$ $\cos\theta =$ $\sec\theta =$ $\tan\theta =$ $\cot\theta =$

You do with your partner.

Left Talk, Right Write.

Given point  $(-6,6)$ , find the 6 trig functions for  $\theta$ .

Plot the point and ray that forms and create the right triangle.	
------------------------------------------------------------------	--

Solve for the missing side.	
<p>Use the trig functions to find values.</p> $\sin\theta = \frac{opp}{hyp} \quad \csc\theta = \frac{hyp}{opp}$ $\cos\theta = \frac{adj}{hyp} \quad \sec\theta = \frac{hyp}{adj}$ $\tan\theta = \frac{opp}{adj} \quad \cot\theta = \frac{adj}{opp}$	$\sin\theta =$ $\csc\theta =$ $\cos\theta =$ $\sec\theta =$ $\tan\theta =$ $\cot\theta =$

You do solo.

Left Talk, Right Write.

Given point (1,3), find the 6 trig functions for  $\theta$ .

Plot the point and ray that forms and create the right triangle.	
Solve for the missing side.	



<p>Use the trig functions to find values.</p> $\sin\theta = \frac{\text{opp}}{\text{hyp}} \quad \csc\theta = \frac{\text{hyp}}{\text{opp}}$ $\cos\theta = \frac{\text{adj}}{\text{hyp}} \quad \sec\theta = \frac{\text{hyp}}{\text{adj}}$ $\tan\theta = \frac{\text{opp}}{\text{adj}} \quad \cot\theta = \frac{\text{adj}}{\text{opp}}$	$\sin\theta =$ $\csc\theta =$ $\cos\theta =$ $\sec\theta =$ $\tan\theta =$ $\cot\theta =$

### Exit Slip

- 1) Given (8,6), find the 6 trig function values of  $\theta$ .
- 2) What is  $\sin(210)$ ?
- 3) What is  $\cot(60)$ ?