WARM UP

1) Fill in the table to show your understanding of the unit circle. Determine which quadrant or axis the angle lies.

DEGREES	WHERE AM I?
90°	pos y-axis
150°	2
−330°	1
240°	3

2) Using your special right triangles or chart, find the following ratios:

$\sin 30° = \frac{1}{2}$ $\csc 30° = 2$

$\cos 45° = \frac{1}{\sqrt{2}}$ $\longrightarrow$ $\sec 45° = \sqrt{2}$

$\tan 60° = \sqrt{3}$ $\cot 60° = \frac{1}{\sqrt{3}}$
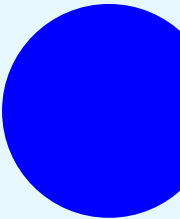
3) What is the formula for the circumference of a circle?

$$C = 2\pi r$$

Mar 14-3:59 PM

Trigonometry Unit

13.3 Radian Measure

Color reveal 3
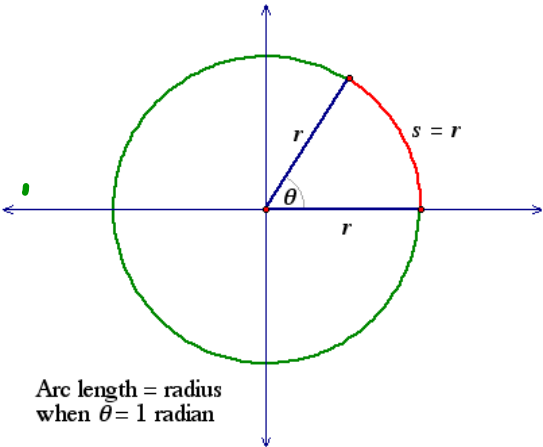
1

Radian Measure

click here for visual of what a radian is
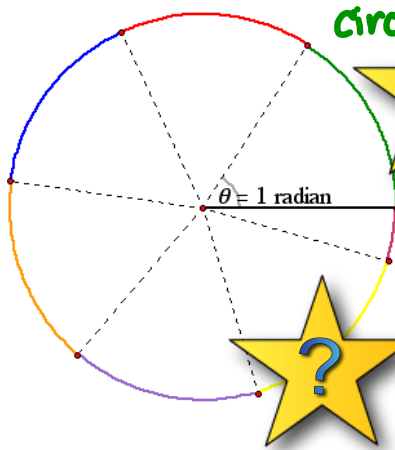
Click here to go to

Mar 13-1:49 PM

When a central angle intercepts an arc that has the same length as a radius of the circle, the measure of the angle is defined to be one **radian.**

r $s = r$

θ

r

Arc length = radius
when θ = 1 radian

Mar 13-11:50 AM

radian = measurement of 1 radius on the
                    circumference of circle

$\theta = 1$ radian

How many radians do you think there are in one circle?

$2\pi = 6.28$ radians

How do we find out exactly how many radians are in a circle?

Mar 13-1:59 PM

Converting Degrees to Radians

To convert degrees to radians multiply by

$$\frac{\pi \ radians}{180^o}$$

Color reveal 3

Rewrite each measure in radians Express the answer in terms of π

1) $45° \cdot \dfrac{\pi}{180}$

$\dfrac{45\pi}{180} \div \dfrac{5}{5}$

$\dfrac{9\pi}{36} \div \dfrac{9}{9}$

$\dfrac{\pi}{4}$

2) $150° \cdot \dfrac{\pi}{180}$

$\dfrac{150\pi}{180} \div \dfrac{3}{3}$

$\dfrac{5\pi}{6}$

3) $270° \cdot \dfrac{\pi}{180}$

$\dfrac{270\pi}{180} \quad \dfrac{9}{9}$

$\dfrac{3\pi}{2}$

Mar 13-2:02 PM

Converting Radians to Degrees

To convert radians to degrees multiply by:

$$\frac{180^o}{\pi \; radians}$$

Color reveal 3

4

Rewrite each measure in degrees. Round to nearest degree.

4) $\dfrac{2\pi}{3}$ *Q2*

$\dfrac{2\pi}{3} \cdot \dfrac{180^{60}}{\pi}$

120

5) $\dfrac{11\pi}{10}$ *Q3*

$\dfrac{11\pi}{10} \cdot \dfrac{180^{18}}{\pi}$

$\begin{array}{r} 18 \\ \times 11 \\ \hline 18 \\ 18 \\ \hline 198 \end{array}$

198°

6) $\dfrac{-\pi}{6}$ *Q4*

$-\dfrac{\pi}{6} \cdot \dfrac{180^{30}}{\pi}$

-30

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CONVERT FROM DEGREES TO RADIANS:

-112°= $\dfrac{-28\pi}{45}$ 100°= $\dfrac{5\pi}{9}$ 320°= $\dfrac{16\pi}{9}$ 15°= $\dfrac{\pi}{12}$

CONVERT FROM RADIANS TO DEGREES:

$\dfrac{3\pi}{10}$= 54° $\dfrac{3\pi}{5}$= 108°   -6π= -1080°   2 = 114.59°

6π

DRAG THESE ANSWERS TO THE CORRECT SPOT. NOT ALL ANSWERS WILL BE USED.

$2 \cdot \dfrac{180}{\pi}$
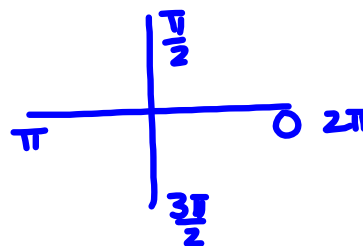
12°
    670°

$\dfrac{\pi}{600}$ 5π $\dfrac{5\pi}{6}$

Mar 13-2:26 PM

In which quadrant or on which axis does the terminal side of each angle lie?   *Note: these angles are given in radians.*

$$\frac{\pi}{3}$$

$$\frac{17\pi}{9}$$

$$\frac{7\pi}{2}$$

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

use the magnifying glass to reveal the answer next to each problem

Mar 15-1:39 PM

To find coterminal angles, you add or subtract 360°. What if the angle is in radians? What would you add or subtract?

$$2\pi$$

Find one positive and one negative coterminal angle.

$$\frac{3\pi}{5}$$

$$\frac{2\pi}{7}$$

+ COTA
$$\frac{3\pi}{5} + 2\pi$$
$$\frac{3\pi}{5} + \frac{10\pi}{5} = \frac{13\pi}{5}$$

- COTA $\frac{3\pi}{5} - 2\pi$
$$\frac{3\pi}{5} - \frac{10\pi}{5} = \frac{-7\pi}{5}$$

+ COTA $\frac{2\pi}{7} + 2\pi =$
$$\frac{16\pi}{7}$$

- COTA $\frac{2\pi}{7} - 2\pi = \frac{-12\pi}{7}$

Feb 28-4:17 PM

CHECK
YOUR
UNDERSTANDING

Head on over to google classroom to complete a self - check puzzle so I can check your understanding of radians and degrees. When you are done, start HW WB pg. 94 #1-30 all.

Mar 14-4:30 PM

Attachments

13.3 Radian Measure.gsp