January 8, 2019

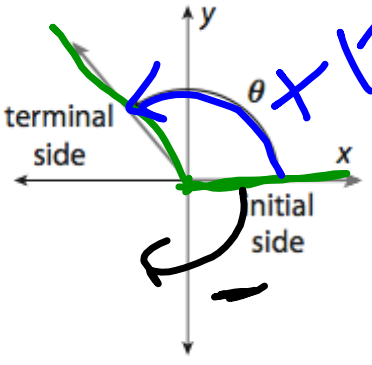
6-2 Angles and Radians Review

Objectives:

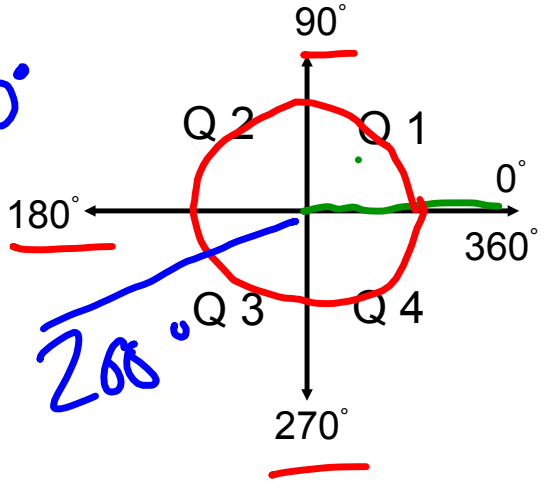
6-2a: I can find co-terminal angles.

6-2b: I can find reference angles.

6-2c: I can convert from radians to degrees and vice versa.



+130°



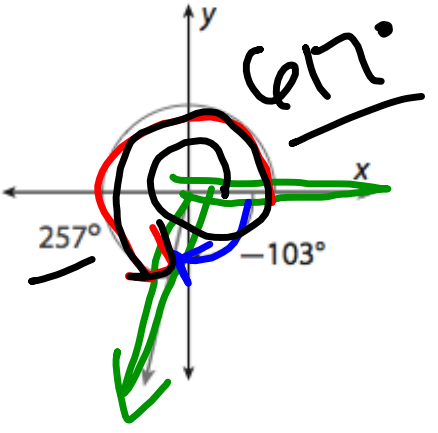
-200°

Counter Clockwise rotation: Positive degree

Clockwise rotation: Negative degree

Coterminal Angles: Angles that share the same terminal side

Ex. 257 and -103

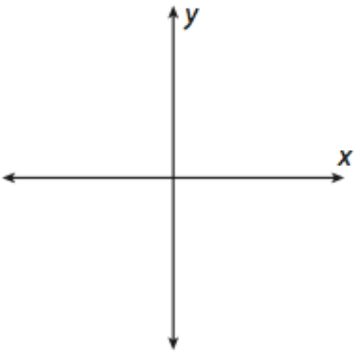


257

$257 + 103 = 360$

$-103 + 360 = 257$

Draw an angle of rotation of 310°. In what quadrant is the terminal side of the angle?

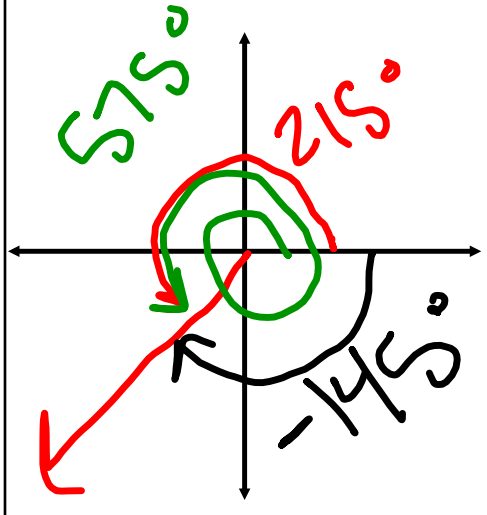


On the same graph from the previous step, draw a positive coterminal angle. What is the angle measure of your angle?

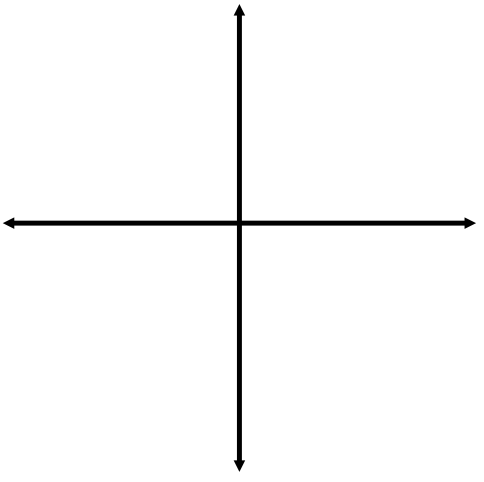
C On the same graph from the previous two steps, draw a negative coterminal angle. What is the angle measure of your angle?

Draw and give the measure of the new angle

A positive angle coterminal to 215°



A negative angle coterminal to 75°



For each angle, find the nearest positive coterminal angle and the nearest negative coterminal angle.

-102°

328°

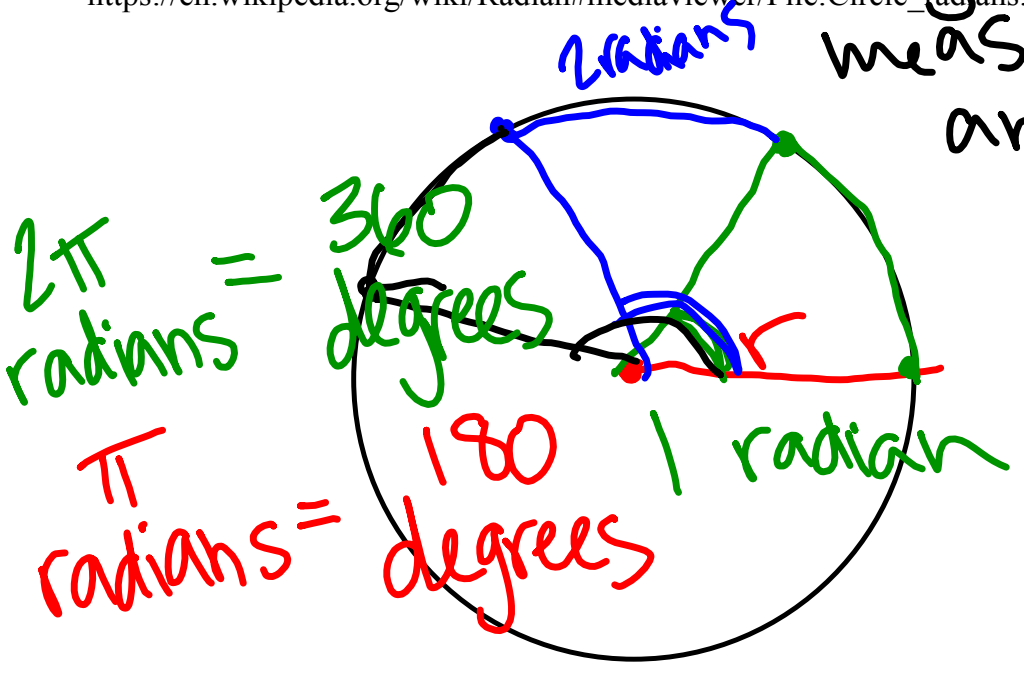
19°

225°

What are radians? – another way to measure an angle

https://www.youtube.com/watch?v=FUrs9JWn_N4

https://en.wikipedia.org/wiki/Radian#mediaviewer/File:Circle_radians.gif



2π radians = 360 degrees

π radians = 180 degrees

1 radian

CONVERTING DEGREES TO RADIANS

Multiply the number of degrees by $\left(\frac{\pi \text{ radians}}{180^\circ}\right)$.

CONVERTING RADIANS TO DEGREES

Multiply the number of radians by $\left(\frac{180^\circ}{\pi \text{ radians}}\right)$.

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Degree measure	Radian measure
20°	$\frac{\pi}{180°} \cdot 20° =$
315°	$\frac{\pi}{180} \cdot 315° = \frac{315 \cdot \pi}{180} = \frac{7\pi}{4}$
600°	
−60°	
−540°	

Radian measure	Degree measure
$\frac{\pi}{8}$	$\frac{180^\circ}{\pi} \cdot \frac{\pi}{8} = \frac{180}{8} = 22.5^\circ$
$\frac{4\pi}{3}$	$\frac{180}{\pi} \cdot \frac{4\pi}{3} = 240^\circ$
$\frac{9\pi}{2}$	
$-\frac{7\pi}{12}$	
$-\frac{13\pi}{6}$	

For each angle, find the nearest positive coterminal angle and the nearest negative coterminal angle.

$$-\frac{\pi}{2}$$

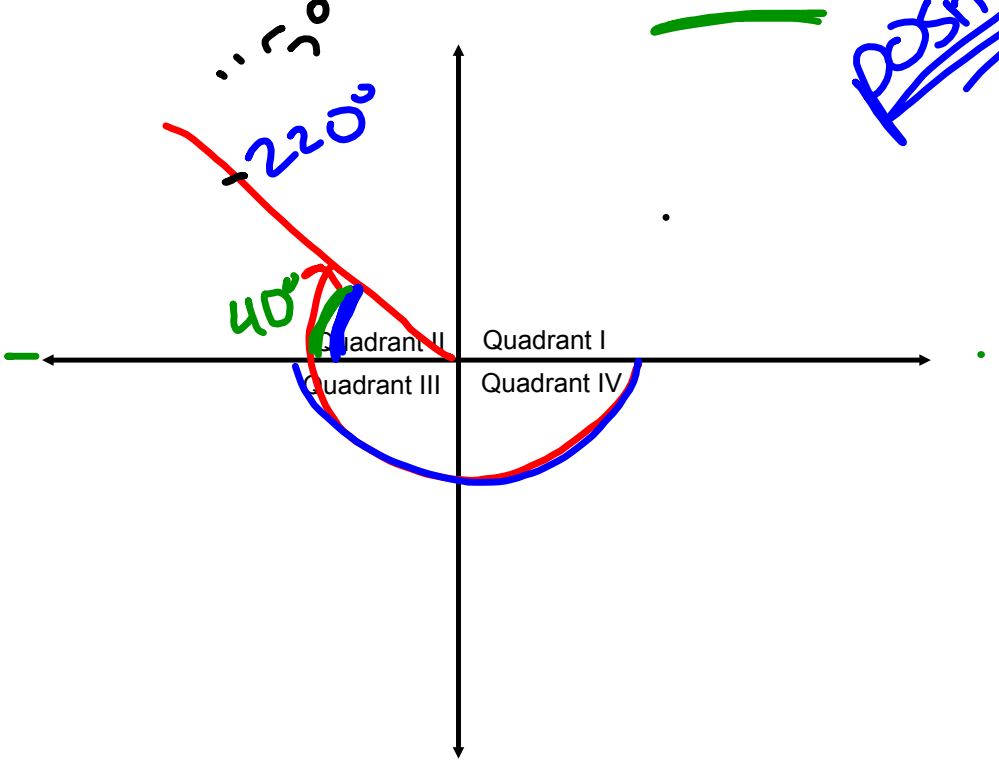
$$\frac{11\pi}{6}$$

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

$$-\frac{\pi}{4}$$

Reference Angles: The acute angle formed by the terminal side and the x-axis.

positive



Given the angle, find the reference angle:

330° 115° 460°

$\frac{2\pi}{3}$ $\frac{7\pi}{4}$ $-\frac{11\pi}{6}$

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