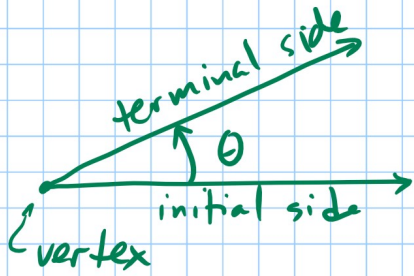
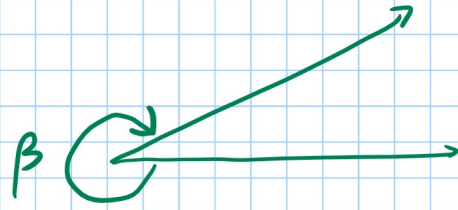


Section 5.1 Angles and Their Measures

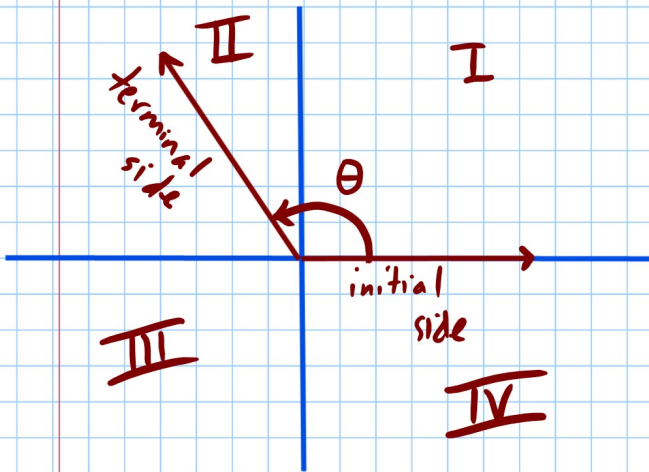


counterclockwise
positive angle measure



clockwise
negative angle measure

Standard Position - initial side is the positive x-axis



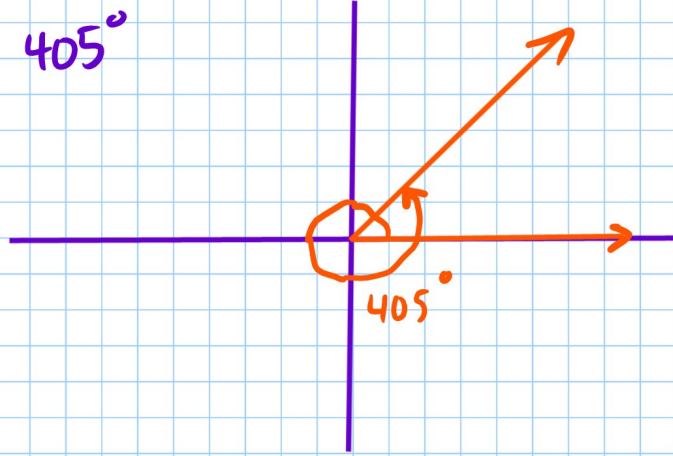
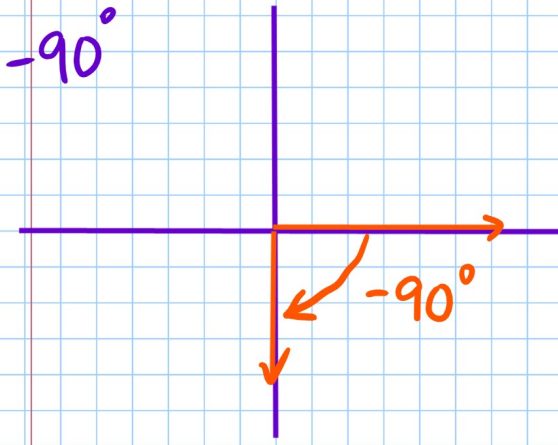
We say θ lies in Quadrant II
because its terminal side is in
Q II.

When the terminal is on an axis we say the
angle is a quadrantal angle.

One way to measure angles is in degrees.

There are 360° in one revolution. A straight angle
measures 180° . A right angle measures 90° .

ex: Draw these angles in standard position.



Degrees, Minutes, Seconds

$44^{\circ} 2' 19''$ N } our location
 $123^{\circ} 9' 3''$ W }

There are 60 seconds in 1 minute

There are 60 minutes in 1 degree

There are 3600 seconds in 1 degree.

Convert to decimal:

$$50^{\circ} 6' 21'' = 50.106^{\circ}$$

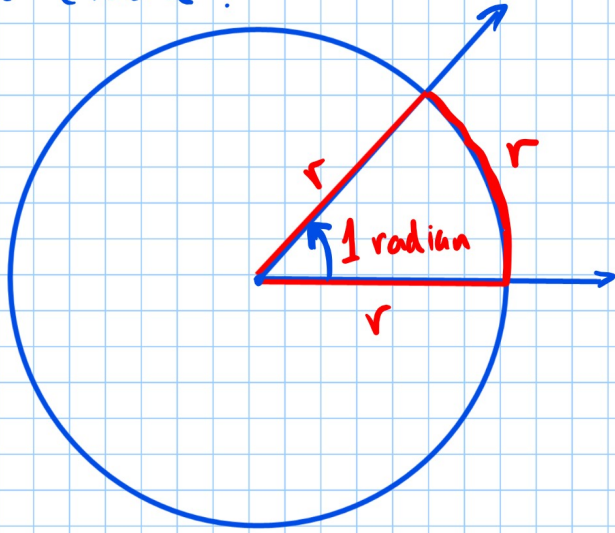
50 [ANGLE] ° [enter] 6 [ANGLE] ' [enter] 21 ["] [enter]
↑ ↑ ↑
2nd APPS 2nd APPS Alpha +

Convert to degrees, minutes, seconds

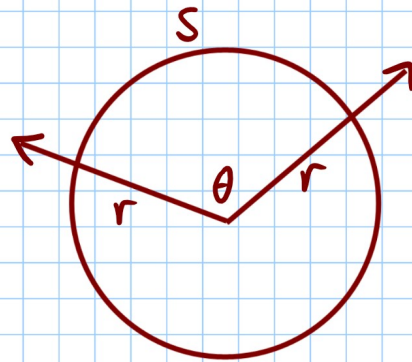
$$21.256^{\circ} = 21^{\circ} 15' 21.6''$$

21.256 [ANGLE] ▸ DMS [enter] [enter]

A central angle is one whose vertex is the center of a circle.

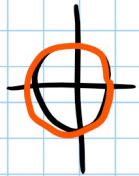


If radius of the circle and the arc length are the same, the angle measures 1 radian.



$$s = r \theta$$

arc length radius angle in radians



What is angle in radians that is 1 revolution?

$$\text{arc length of one revolution} = \text{circumference}$$

$$r\theta = 2\pi r$$

$$\theta = 2\pi \text{ radians}$$

$$360^\circ = 2\pi \text{ radians}$$

$$1^\circ = \frac{\pi}{180} \text{ radians}$$

$$\frac{180^\circ}{\pi} = 1 \text{ radian}$$

To convert from degrees to radians, multiply by $\frac{\pi}{180}$.

ex: Convert 315° to radians

$$315 \cdot \frac{\pi}{180} = \frac{7}{4} \pi = \frac{7\pi}{4}$$

$315 * 1/180 \rightarrow \text{FRAC}$

↑
MATH
OPTION 1

To convert from radians to degrees, multiply by $\frac{180}{\pi}$

ex: Convert $\frac{5\pi}{6}$ to degrees

$$\frac{5\pi}{6} \cdot \frac{180}{\pi} = 150^\circ$$

p379

1-41 eoo,
69, 70, 75, 76