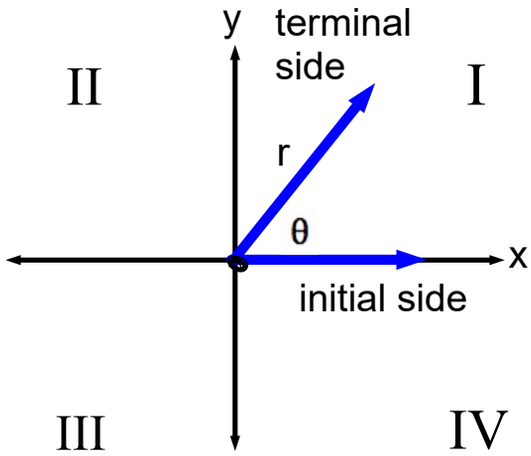
Unit Circle

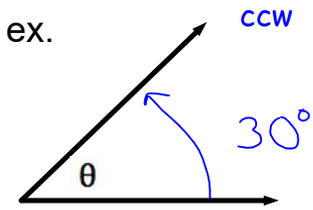
Standard Position of θ

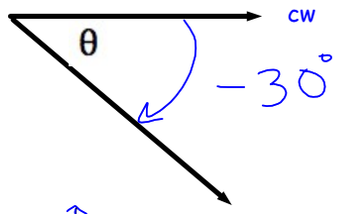


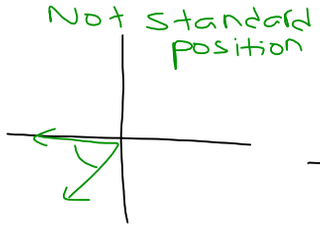
Initial side lays on the x-axis

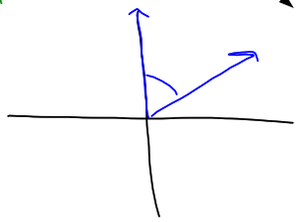
Vertex is at the origin

ex.









Sketch:

a) θ = 135°

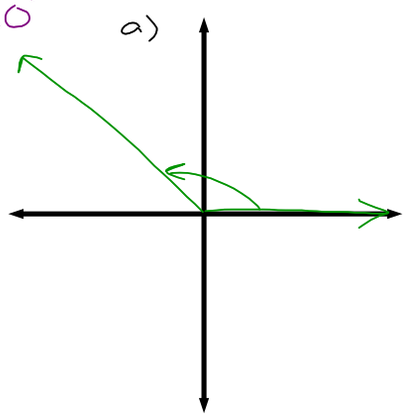
b) θ = - 225° +360° 135°

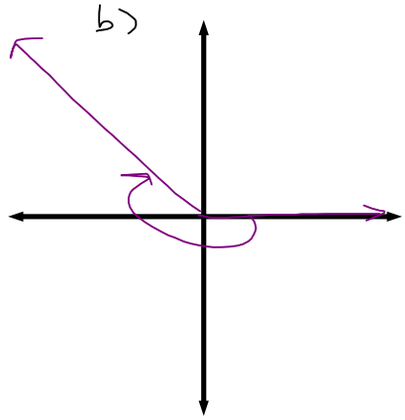
c) θ = 405° −360° 45°

d) θ = 2

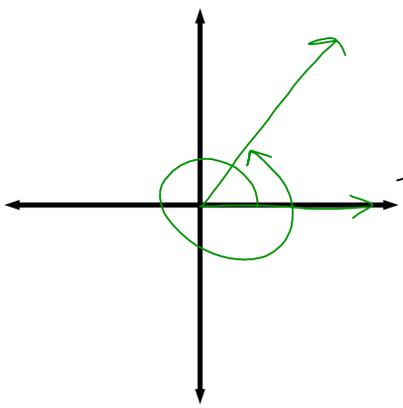
e) θ = - 3.5 +6.28

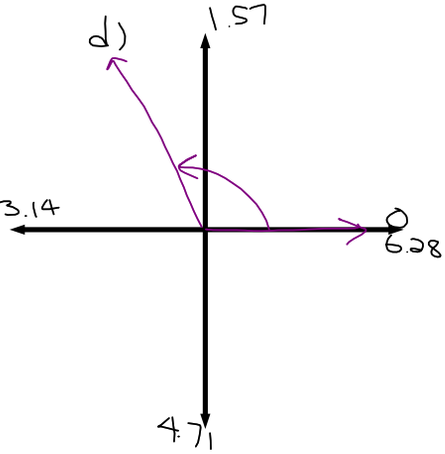
6.28
−3.5
2.78

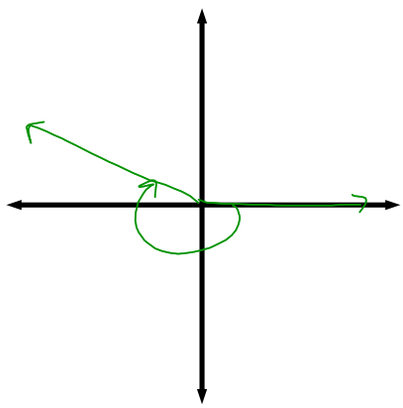




c)



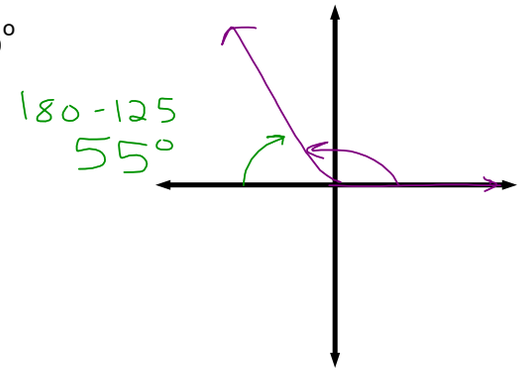




Reference Angles

Acute angles formed between the terminal side of an angle and the nearest x-axis.

ex. $\theta = 125°$

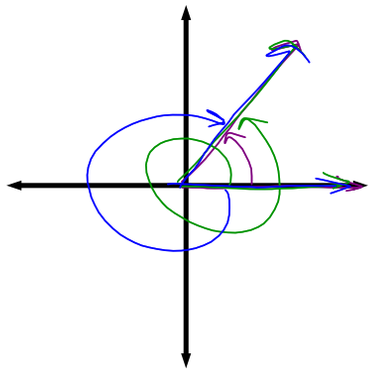


Q1
$\theta_r = \theta$
Q2
$\theta_r = 180° - \theta$
Q3
$\theta_r = \theta - 180°$
Q4
$\theta_r = 360° - \theta$

Coterminal Angles

Angles which share the same terminal side.

ex. $\theta = 45°$
$\theta = 405° - 360°$
$= 45°$
$\theta = -315°$
$+360°$
$= 45°$



ex. Give two coterminal angles for 30°

$30 + 360 = 390°$
$30 - 360 = -330°$

ex. Determine the measures of angles that are coterminal with 85° for $-400° \leq \theta \leq 400°$

~~$85 + 360 = 445°$~~
$85 - 360 = -275°$

Note: There are infinitely many coterminal angles.

Pink WS