Tuesday, March 24, 2020

Sec 7-2: Angles and the Unit Circle

Right triangle trigonometry involves
the non-right angles of the triangle.

and using   SOHCAHTOA

This means you were only able to
find the Sin, Cos, and Tan of acute
angles.

There are many other angles besides acute angles!

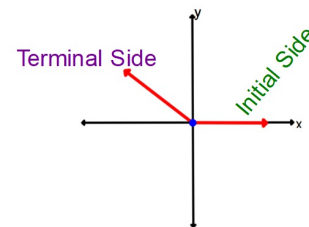Angles can be bigger than 90º but less than 180º....

bigger than 180º ....

and even bigger than 360º !

Angles can even be negative.

Angles is Standard Position:
Vertex is at the origin.
One of the rays (sides) is on the positive x-axis.

Initial Side:
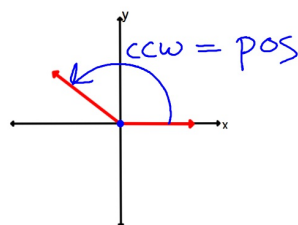The side on the Positive x-axis.
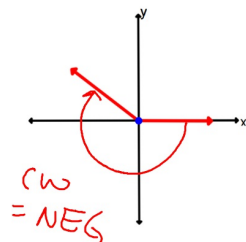
It's where the angle starts

Terminal Side:
The other ray that forms the angle.

It's where the angle stops.
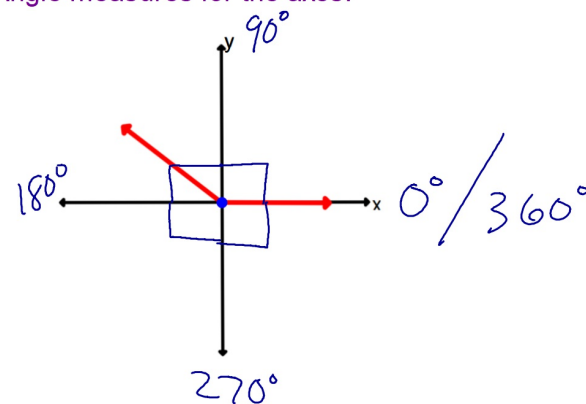
Terminal Side
Initial Side

Positive Angles are measured starting from the positive x-axis and rotating in a **Counter-Clockwise** direction.

Negative Angles are measured starting from the positive x-axis and rotating in a **Clockwise** direction.

ccw = POS

cw = NEG

Angle measures for the axes:

$90°$

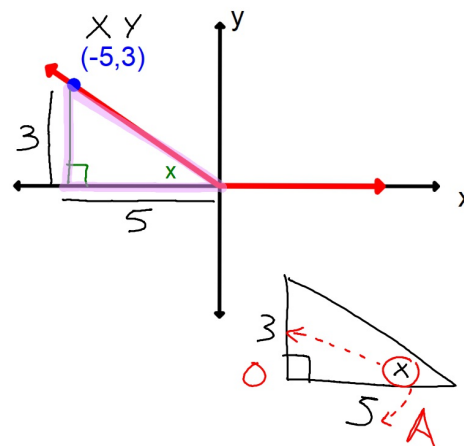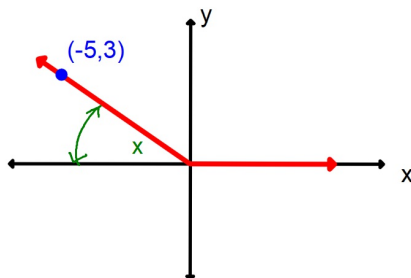$180°$

$0° / 360°$

$270°$

Find the measure of the angle shown.

Start by creating a **Reference Angle**

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

(-5,3)

x

y

x

X Y
(-5,3)

3

x

5

1. Create a right Δ with the terminal and the x-axis.

2. Label the sides of this Δ using the coordinates of the given point.

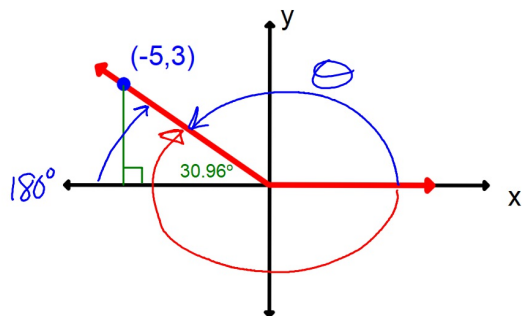3. Use an inverse trig function to find this reference angle.

SOHCAHTOA

$\tan x = 3/5$

$x = \tan^{-1}(3/5)$

$x = 30.96°$

3
O
x
5 A

y

x

Use the reference angle to find the measure of the original given angle.

(-5,3)

y

30.96°

180°

x

Positive measure:

θ = $180° - 30.96°$

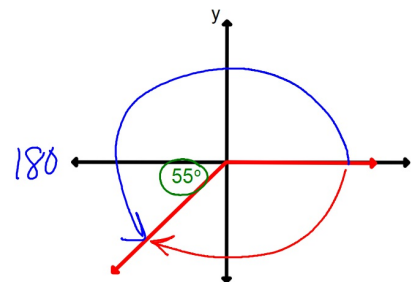$\boxed{\theta = 149.04°}$

Negative measure:

θ = $-(180 + 30.96)$

$\boxed{\theta = -210.96°}$

Find both a positive and negative angle measure for the angle in standard position with the given reference angle.

y

180

55°

x

Positive measure:

θ = $180 + 55$

$\boxed{\theta = 235°}$

Negative measure:

θ = $-(180 - 55)$

$\boxed{\theta = -125°}$

State the reference angle for each given angle that is in Standard Position:

1. θ=345°

90°

180°

270°

0° 360°

$\boxed{Ref \angle = 15°}$

360-345 = 15

345°

1. θ=120°

120°

90°

180-120

180°

0°
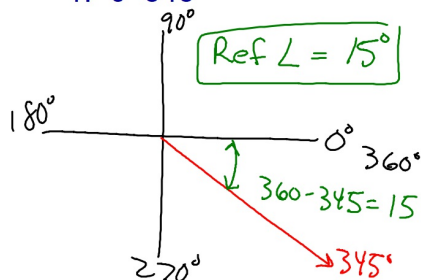
$\boxed{Ref \angle = 60°}$
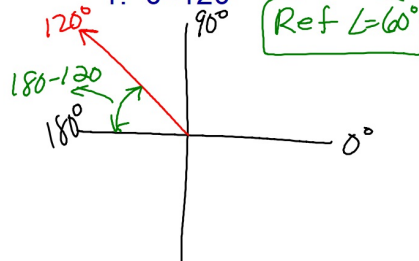
You can now do Practice #7 which is posted on my blog.