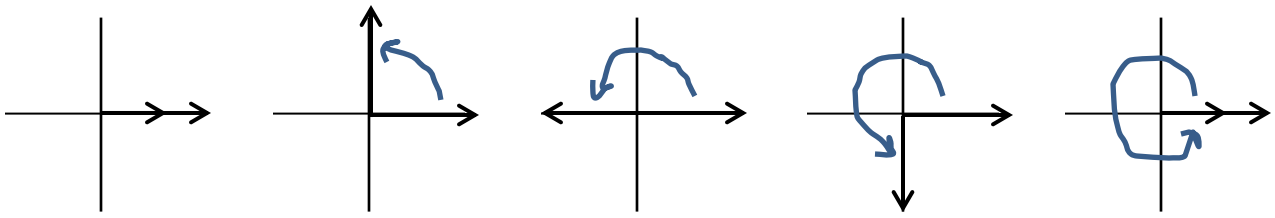
Angles and degrees and radians.

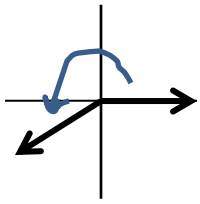
Angles can be greater than 90^o.

When drawing an angle, the initial side is always on the positive half of the x-axis.



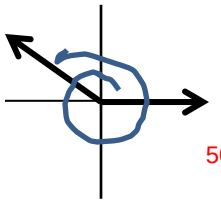
0 degrees | 90 degrees | 180 degrees | 270 degrees | 360 degrees

A 215^o angle?



In quadrant III

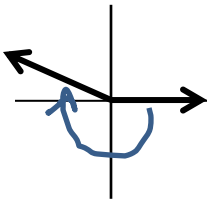
An angle bigger than 360^o, like 500^o? Keep going CCW.



500 – 360 = 140

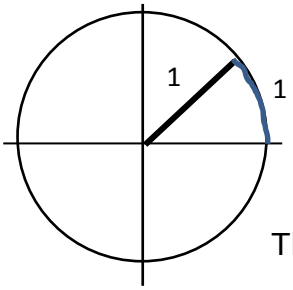
In quadrant II

A negative angle, like -200^o? Go clockwise



In quadrant II

There is another way to measure angles besides degrees, called radians.



A circle with radius = 1 is called the unit circle.

When the angle is such that the length of the arc made by the Angle is also = 1, the measure of the angle is 1 radian.

The circumference of this circle = $2\pi r = 2\pi(1) = 2\pi$

So going all the way around is __2π_____ radians. Note: we don't use a symbol for radians

So 360^o = __2π_____ radians and 180^o = __π_____ radians

Converting degrees to radians: $55° \times \frac{2\pi \ radians}{360 \ degrees}$ = 0.9599 radians

Converting radians to degrees: $2.4 \ rad \times \frac{360 \ degrees}{2\pi \ radians}$ = 130.51 degrees

When evaluating trig functions on the calculator you must be in the right mode.

MODE → radians **degrees**

Ex: cos 46^o = 0.695 vs tan π = 0