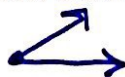


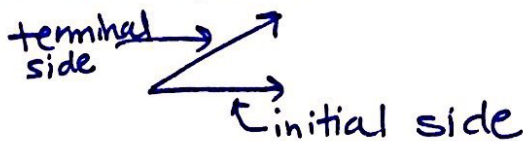
Parts of Angles and DMS

Recall that an angle is defined as two non-collinear rays that share a common endpoint, called the vertex.



An angle in (circle) trigonometry has a fixed (starting) side, called the initial side - which points in the direction of the positive x-axis.

The vertex is the origin.



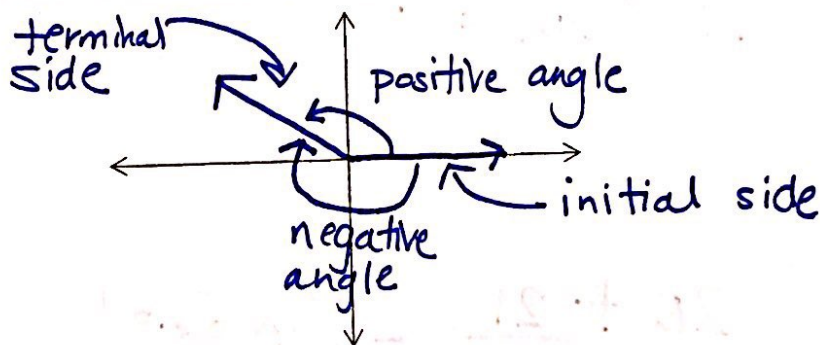
The second side is rotated (like the hands of a clock) about the vertex. This side is called the terminal side.

An angle with this placement is said to be in Standard position.

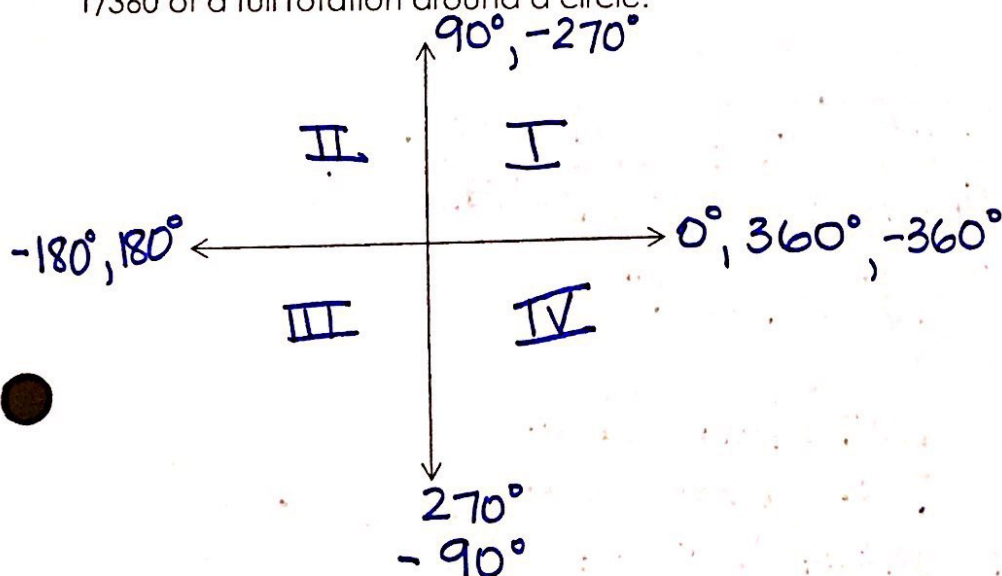
The measure of the angle describes the Amount & direction of the rotation necessary to move from the initial side to the terminal side.

A positive angle indicates that the terminal side has been rotated counter-clockwise.

A negative angle indicates that the terminal side has been rotated clockwise.



The most common angular unit of measure is called the "**degree**," which is equivalent to $1/360$ of a full rotation around a circle.



Degrees - Not exact

Obviously the terminal side can end up not on a "degree" mark. Thus, you can have measures that use parts of a degree.

There are two ways that this might be indicated:

1. Decimal form: This form simply indicates the "fractional" part of the degree.

Example: 35.75° - means 35 degrees and $3/4$ more of a degree

2. Degrees-Minutes-Seconds (DMS)

A more formal "part form" of a degree uses minutes and seconds.

The conversion ratio between decimal form and DMS is like that of a clock.

1 degree is made up of 60 minutes ($1^\circ = 60'$)

1 minute is made up of 60 seconds ($1' = 60''$)

Example 1: Convert 65.755° into DMS form

$$.755(60) = 45.3$$

$$.3(60) = 18$$

$$65^\circ 45' 18''$$

Example 2: Convert $20^\circ 21'$ into Decimal form

$$20 + \frac{21}{60} = 20.35^\circ$$

Example 3: Convert 65.75382° into DMS form by calculator

Type 65.75382 in calculator

Press $\boxed{2ND}$ \boxed{APPS} $\boxed{4}$ \boxed{ENTER}

$$65^\circ 45' 13.752''$$

Example 4: Convert $20^\circ 15' 54''$ into Decimal form by calculator

Type 20 $\boxed{2ND}$ \boxed{APPS} $\boxed{1}$

Type 15 $\boxed{2ND}$ \boxed{APPS} $\boxed{2}$

Type 54 \boxed{ALPHA} $\boxed{+}$ \boxed{ENTER}

$$20.265^\circ$$

DEGREE RADIAN QUIZ

NAME _____

Complete the circle by writing the measure of each standard angle in degrees and radians.

