Today's Plan:

Learning Target (standard): I will describe geometric and trigonometric angles.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

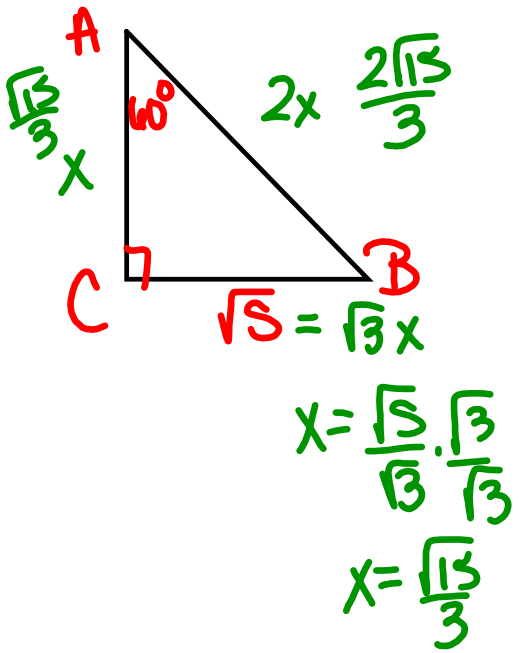
Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

Find the trig values for angle A given angle C is 90°.

$\angle A = 60°$

$BC = \sqrt{5}$



$\sin A = \frac{\sqrt{5}}{\frac{2\sqrt{15}}{3}} = \frac{\sqrt{5}}{1} \cdot \frac{3}{2\sqrt{15}} = \frac{3}{2\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

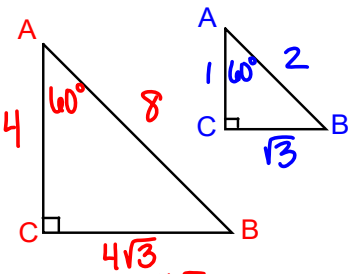
$= \frac{3\sqrt{3}}{6} = \frac{\sqrt{3}}{2}$

$\cos A = \frac{\frac{\sqrt{15}}{3}}{\frac{2\sqrt{15}}{3}} = \frac{\sqrt{15}}{3} \cdot \frac{3}{2\sqrt{15}} = \frac{1}{2}$

$\tan A = \frac{\sqrt{5}}{\frac{\sqrt{15}}{3}} = \frac{\sqrt{5}}{1} \cdot \frac{3}{\sqrt{15}} = \frac{3}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$= \frac{3\sqrt{3}}{3} = \sqrt{3}$

Why are the trigonometric values for a 60° (or 30° or 45°) angle within a right triangle the same regardless of the lengths of the sides of the triangle that the angle is in?



$\sin A = \frac{4\sqrt{3}}{8} = \frac{\sqrt{3}}{2}$ $\sin A = \frac{\sqrt{3}}{2}$

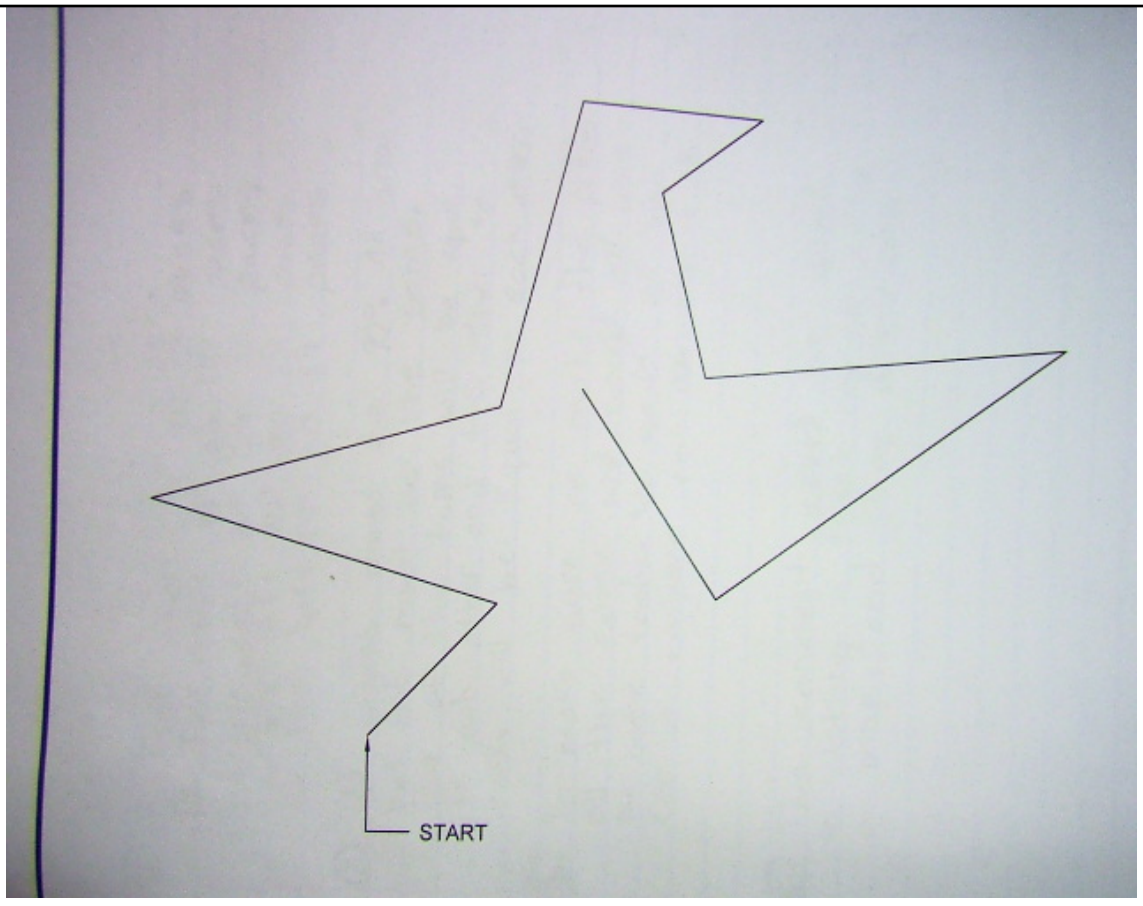
$\cos A = \frac{4}{8} = \frac{1}{2}$ $\cos A = \frac{1}{2}$

$\tan A = \frac{4\sqrt{3}}{4} = \sqrt{3}$ $\tan A = \frac{\sqrt{3}}{1} = \sqrt{3}$

Similar triangles (AAA)

- the triangles have the same angle measures
- corresponding sides of the triangles are proportional to one another
  - the ratio of two sides within one triangle is equal to the ratio of corresponding sides in the other triangle
- the trigonometric values of an angle are the ratios of 2 sides in the triangle

$\therefore$ the trigonometric values of corresponding angles have to be equal



Walking Paths:

What can we do to make sure ALL paths are the same?

- consistent angle measure
- same starting point
- standard pace size

Geometric Angles

- Measure the "distance" between sides of a polygon or between two lines
- Measurement can range $0^o \leq x \leq 180^o$
- Unit of measure is degrees
- Used to find the trigonometric values for ALL angles

Trigonometric Angles

- Measure rotation, direction, and magnitude
- Measurement can be from negative infinity to infinity
  - Negative angles are measured clockwise
  - Positive angles are measured counterclockwise
- Unit of measure can be degrees, degrees-minutes-seconds, or radians

Trigonometric Angles continued

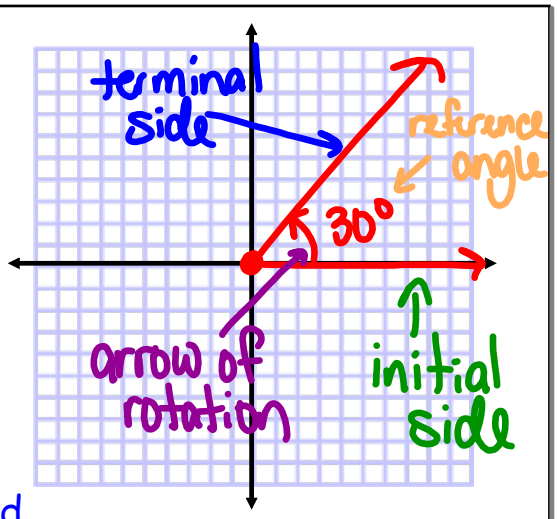
- Always in standard position
  - Location is on the x-y coordinate plane
  - Vertex is at the origin
  - Initial side is on the positive x-axis

** All angles from here on out will be assumed to be in standard position

Draw the given angle.

30^0

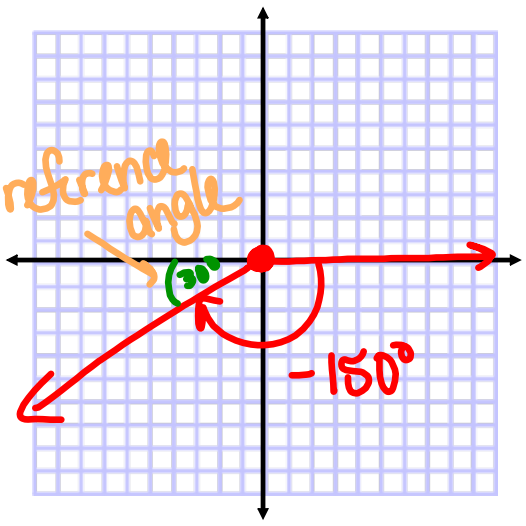
standard position



- Reference Angle - the angle formed by the terminal side and the x-axis

Draw the given angle.

-150^0



Give 3 numerical examples of geometric angles & 3 numerical examples of trigonometric angles. Provide a diagram of each and describe why you are classifying each of them as such. Provide a description for each individual angle, not all of them together. Be sure to use the properties in your description.