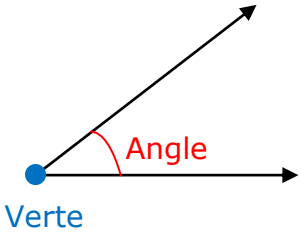
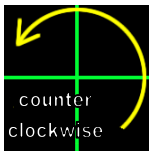
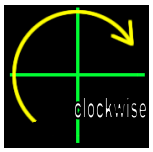
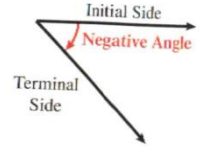
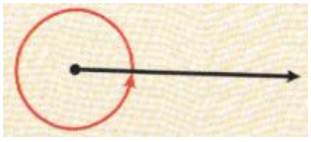
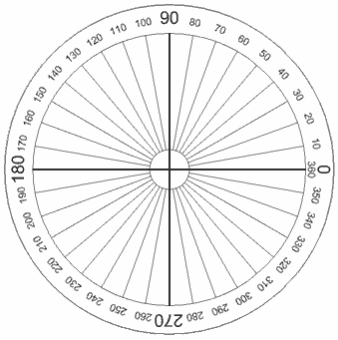
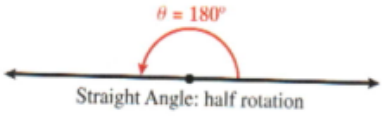
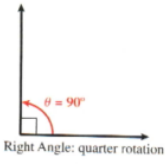
Notes #4-2: Angle Measure

Word	Definition	Picture
Angle	Two rays share the same endpoint. The common endpoint is called a vertex	
We say an angle is formed when a ray is rotated around its endpoint. The ray in the original position is called the **initial ray** (assumed to be x-axis). The ray after it is rotated is called the **terminal ray.** Counterclockwise rotation = positive angle Clockwise rotation = negative angle		  
Degree measure	http://www.mathsisfun.com/geometry/degrees.html 	
360°	An angle formed by one complete counterclockwise rotation	
A full circle is 360° **Why 360 degrees?** Probably because old calendars (such as the Persian Calendar) used 360 days for a year - when they watched the stars they saw them revolve around the North Star one degree per day.		
180° Straight Angle	Half Rotation	
90° Right Angle	Quarter Rotation	

If have a full schedule (8am-3:20pm), you are in school for 7.3 hours each day

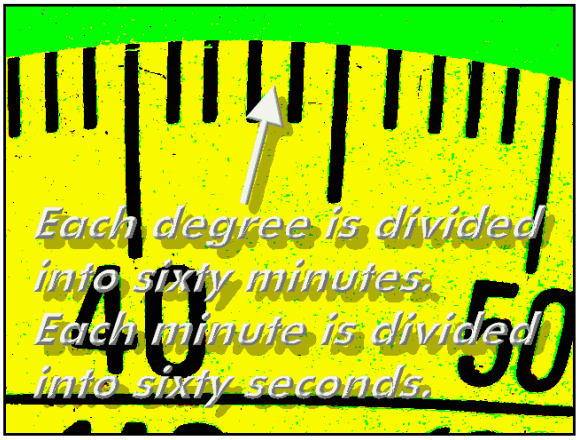
However, only 6.53 hours are devoted to academic endeavors.

Find the specific number of hours, minutes and seconds you spend perusing academic interests.

Degree measurement works a lot like time ….

Degree Measurements	
Minutes	60 minutes = 1 degree
Seconds	60 seconds = 1 minute

Hour Measurement	
Minutes	60 minutes = 1 hour
Seconds	60 seconds = 1 minute



Example 1: Converting between decimal and DMS and DMS to decimal

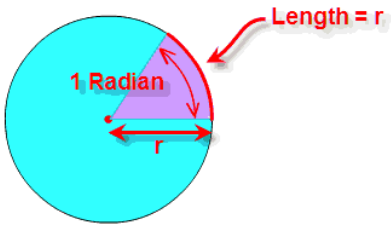
a. 102.75

b. 40.34722

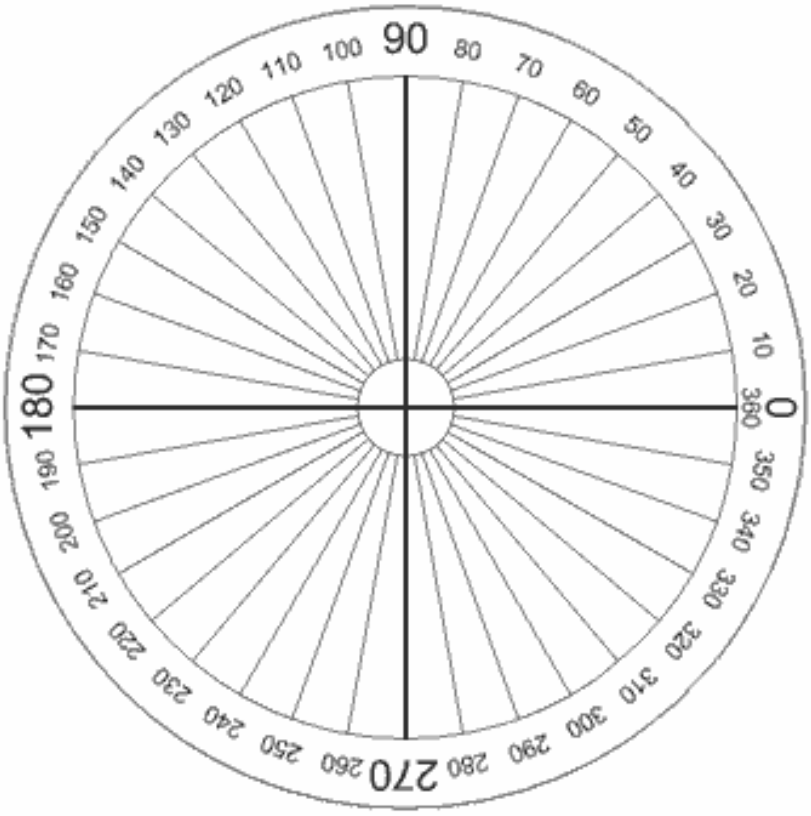
c. 280°10′

d. 17°55′19″

However, we can also use **radians** to measure angles!

Radian measure	A radian is the angle made when we take the radius and wrap the radius around the edge of the circle http://www.mathsisfun.com/geometry/radians.html Angle measures that do not have ° are assumed to always be in **radians!**	

The degree-radian connection



Conversation Factor for Radians ⇔ Degrees

Example 2: converting between radian and degree measure

Convert decimal into radian

Convert radian into DMS

a. $\frac{\pi}{8}$

b. $16\ radians$

c. $61.8°$

d. $5°35'$

e. $75°12'24''$

f. $\frac{24\pi}{9}$