

Math 1030 #17a

Fundamentals of Geometry

- Points, Lines, Planes, Angles

Geometry some vocabulary

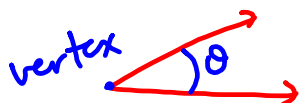
point: 0-d object; takes up no space but does have location

line: 1-d object; connects 2 pts along the shortest path; it has infinite length but no width.

plane: 2-d object; a flat surface with infinite length & width but no thickness

dimension: number of independent directions you can move

angles: formed by intersection of two lines



right angle: measure is 90° ; the 2 lines intersect perpendicularly (notation: perpendicular)



straight angle: measure is 180°



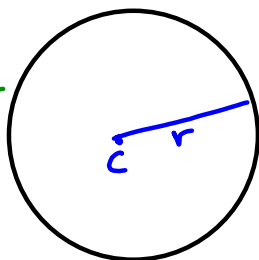
acute angle: measure is $< 90^\circ$ (less than)



obtuse angle: measure is $> 90^\circ$ (not 180°) (bigger than)



Circle: set of pts equidistant from a fixed pt, called the center.



r = radius of circle

C = center

$$r = \frac{1}{2}d = \frac{1}{2} \cdot \text{diameter}$$

EX 1: If you have a circular clock, determine the answer to these questions about angles.

there are 360° in a circle

a) At 5:00 what is the angle between the hands of the clock?



from 12 to 5, we've traversed $\frac{5}{12}$ of the way around a circle
 $\text{angle} = \frac{5}{12}(360^\circ) = 150^\circ$

b) At what time(s) will the hands of the clock be at an angle of 120° , assuming it is on the hour?



from 4 to 12, $\text{angle} = \frac{4}{12}(360^\circ) = 120^\circ$
 from 8 to 12, $\text{angle} = \frac{4}{12}(360^\circ) = 120^\circ$

\Rightarrow at 4:00 and again at 8:00

c) What is the angle between the hands of the clock when it is 1:00?



from 12 to 1, we traversed $\frac{1}{12}$ of the way around the circle
 $\Rightarrow \text{angle} = \frac{1}{12}(360^\circ) = 30^\circ$