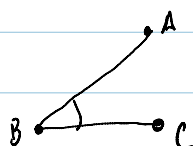


# Chapter #10      Circle Geometry

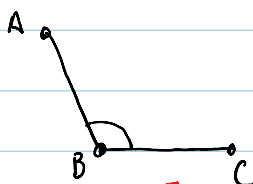
## 10.1 Exploring Angles in a Circle

### Geometry Review



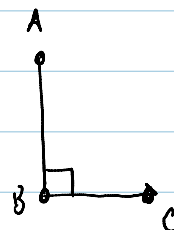
ACUTE

-less than  $90^\circ$

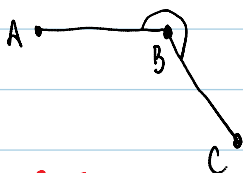


OBTUSE

-greater than  $90^\circ$   
but less than  $180^\circ$

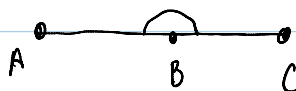


RIGHT =  $90^\circ$



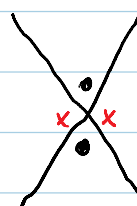
REFLEX

-greater than  $180^\circ$

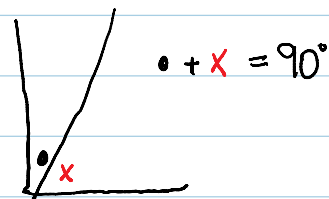


STRAIGHT =  $180^\circ$

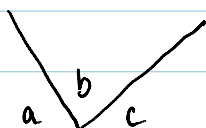
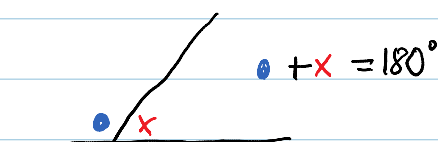
When 2 lines cross, opposite angles are =  
↳ **congruent** means 'the same' or 'equal'



Any 2 angles that add to  $90^\circ$  are  
**complementary**

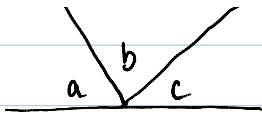


Any 2 angles that add to  $180^\circ$  are  
**supplementary**



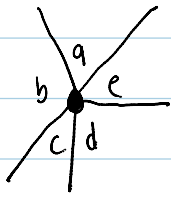
$$a + b + c = 180^\circ$$

angles on a line are



$$a + b + c = 180^\circ$$

angles on a line are supplementary (add to  $180^\circ$ )



$$a + b + c + d + e = 360^\circ$$

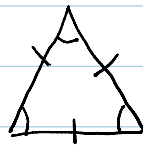
angles at a point add to  $360^\circ$

## TRIANGLES



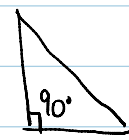
ISOSCELES

- 2 equal sides
- 2 equal angles



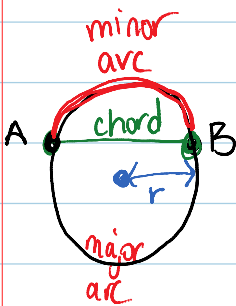
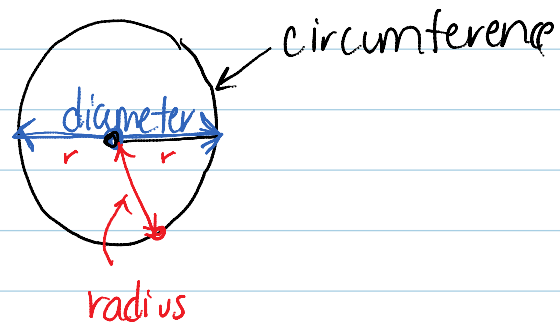
EQUILATERAL

- 3 equal sides
- 3 equal angles



RIGHT

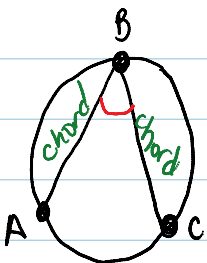
Now draw a circle and label the circumference, radius and diameter.



A line that joins 2 points on a circle is a **chord**

A section of the circumference of a circle is an **arc**

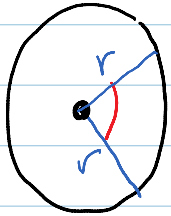
- ↳ the shorter side is called **minor arc**
- ↳ the longer side is called **major arc**



**inscribed angle** =  $\angle ABC$  an angle formed by 2 chords that share a common endpoint

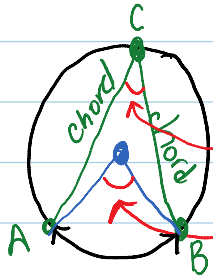


A circle that share a common endpoint



central angle: an angle formed by 2 radii (radius) of a circle

Ex. #1 Label the following parts and angles

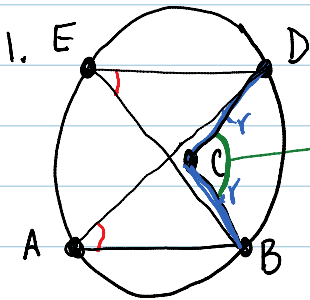


inscribed angle  $\angle ACB$   
central angle  $\angle AOB$

# the inscribed angles subtended by the same arc are congruent #

$AB$  = minor arc

Angle Properties in a Circle:



central angle

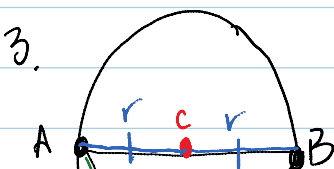
Inscribed angles subtended by the same arc are  $\angle E = \angle A$   
 $\rightarrow$  a central angle is twice the measure of an inscribed angle subtended by the same arc.

$$\angle C = 2 \times \angle A$$

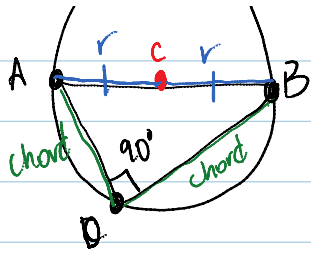
or

$$2 \times \angle E$$

2. An inscribed angle is  $\frac{1}{2}$  the measure of a central angle subtended by the same arc.  $\angle A = \frac{1}{2} \angle C$



When the inscribed angle is subtended by a diameter of the circle, the inscribed angle is  $90^\circ$



a diameter of the circle, the inscribed  $\sphericalangle$   
angle is  $= 90^\circ$

Practice pg. 382 # 3-21