Math 9 Date: _____

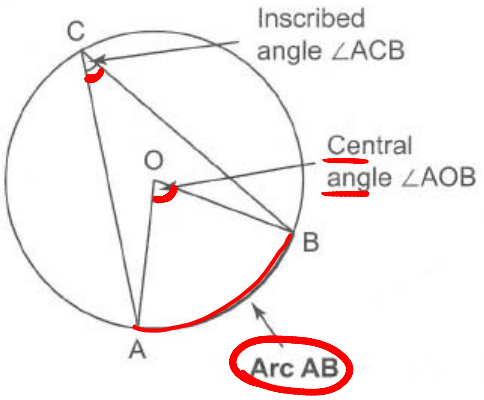
Section 9.3: Properties of Angles in a Circle

In a circle:

A _central_ angle has its vertex at the center.

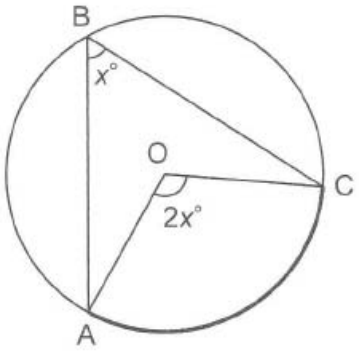
An _inscribed_ angle has its vertex on the circle.

Both angles share the arc AB.



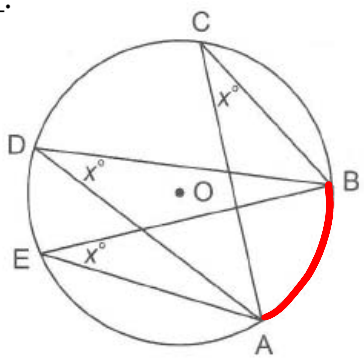
Rule #1: Central angle and Inscribed Angles Property:

The measure of a central angle is _twice_ the measure of an inscribed angle sharing the same arc.



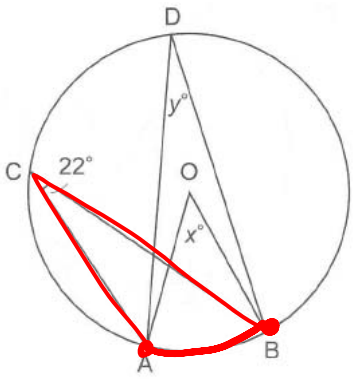
Rule #2: Inscribed Angles Property:

Inscribed angles that share the same arc are _equal_.



EXAMPLES:

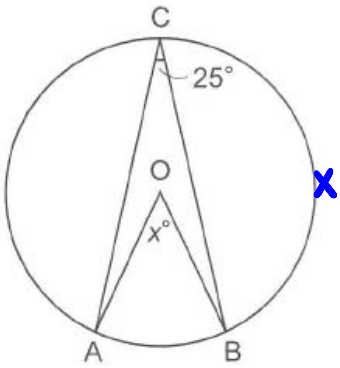
1) Find the values of $x°$ and $y°$



$x° = 2 \cdot 22° = 44°$ (↑ multiply)

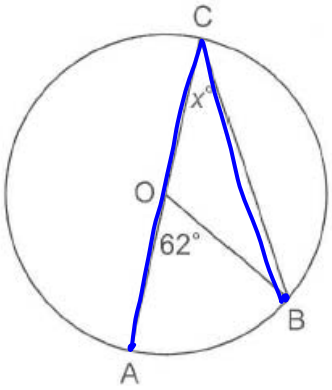
$y° = \angle ADB = 22°$ (↑ angle) (inscribed angles sharing the same arc)

2)



$x = 50°$

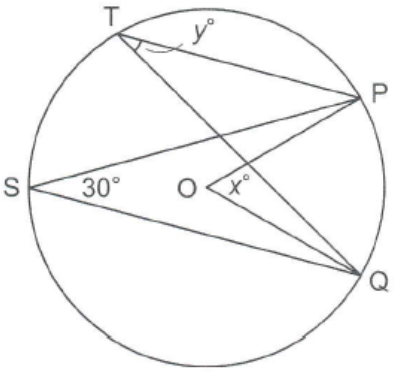
3)



$\frac{62}{2} = 31°$

$x° = 31°$

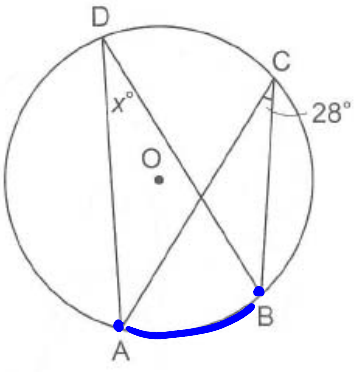
4)



$x° = 60°$

$y° = 30°$

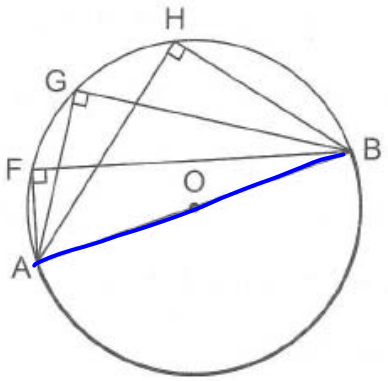
5)



$x° = 28°$

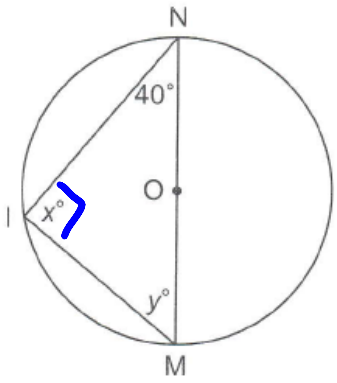
Rule #3: Angles in a semicircle property:

Inscribed angles in a semicircle are right angles.



EXAMPLES:

6)

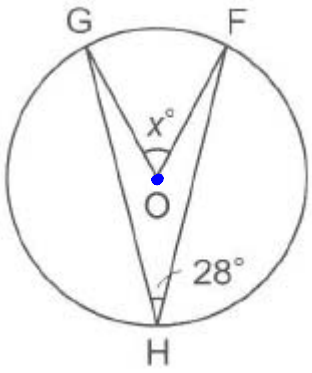


$x^\circ = 90^\circ$

$y^\circ = 180 - 90 - 40$

$= 50^\circ$

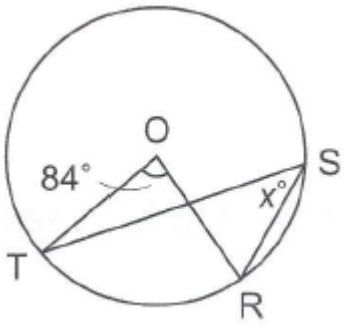
7)



$2 \times 28^\circ = 56^\circ$

$x^\circ = 56^\circ$

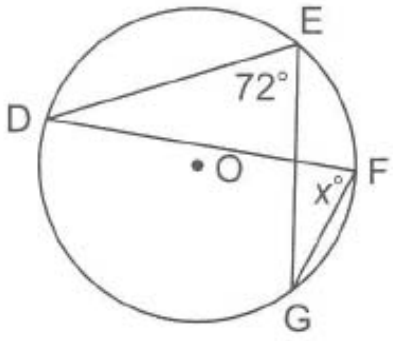
8)



$\frac{84}{2} = 42^\circ$

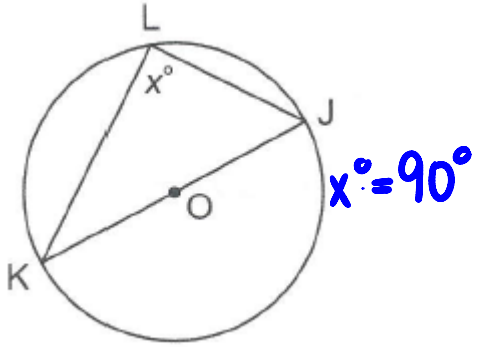
$x^\circ = 42^\circ$

9)



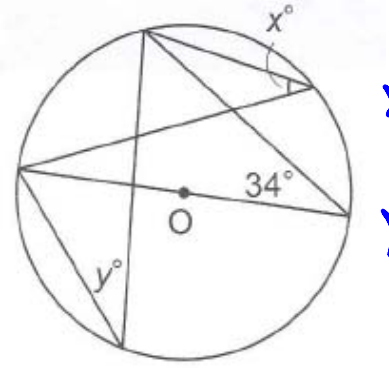
$x^\circ = 72^\circ$

10)



$x^\circ = 90^\circ$

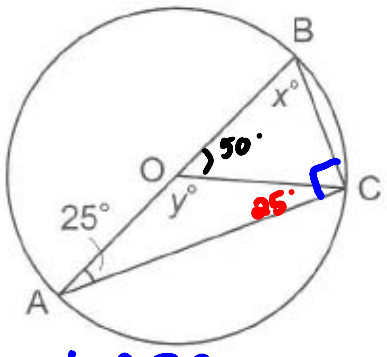
11)



$x^\circ = 34^\circ$

$y^\circ = 34^\circ$

12)



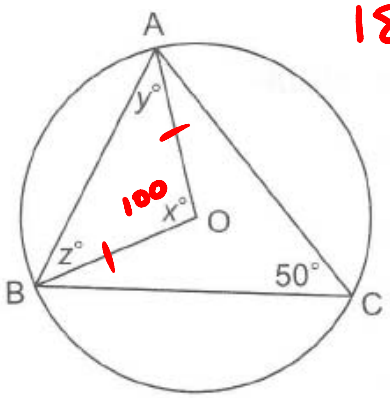
ΔABC

$x° = 180° - 90° - 25°$

$x° = 65°$

$y° = 180° - 50° = 130°$

13)



$180 - 100 = 80$

$\frac{80}{2} = 40°$

$x° = 100°$

$y° = 40° = z°$

(isoc. Δ)

$x + y = 180°$

x / y. add to 180°

9.3 pg 410 # 3-6, 9, 11

Mid-Unit review (9.1-9.2) pg 403 all

pg 418 # 1-10 (review)