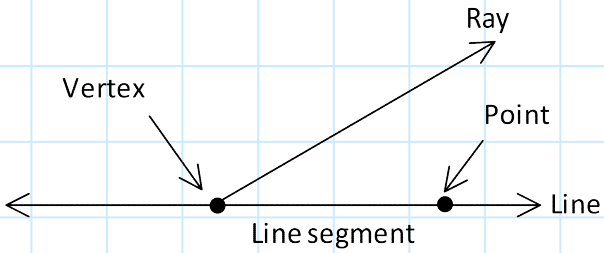
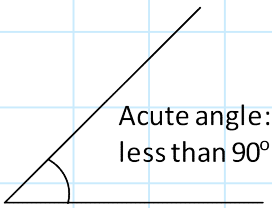
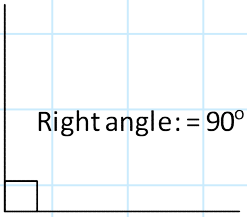
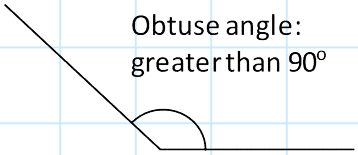
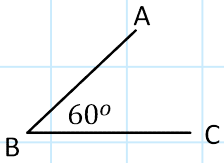
M9 - 10.0 - Angles/Triangles/Parallel/Lines Notes





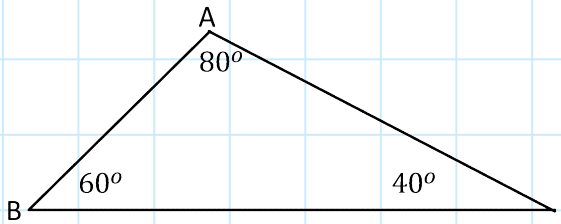






$\angle ABC = \angle B = 60^o$

$\angle C = \angle BAC = 80^o$

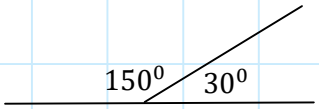


$\angle B = \angle ABC = 60^o$

$\angle C = \angle BCA = 40^o$

M9 - 10.1 - Lines/Angles/Parallel Review Notes

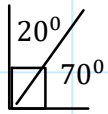
Supplementary



Angles on a line sum to 180^o.

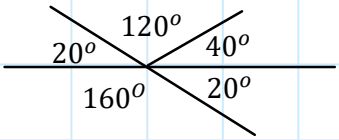
$\angle 1 + \angle 2 = 180^o$

Complementary



Angles sum to 90^o.

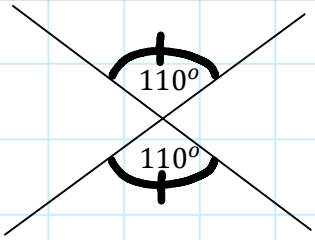
$\angle 1 + \angle 2 = 90^o$



$\angle's$ on a point add to 360^o

$180^o + 180^o = 360^o$

Opposite Angles are Equal.

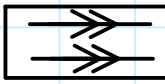


X

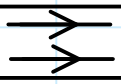
OPP $\angle$'s =

$\angle 1 = \angle 2$

Tick Equal Angles

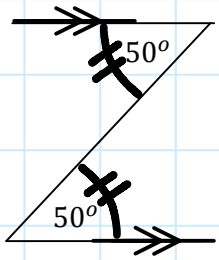


Parallel lines: Lines never touch



Tick/Double Arrow Parallel Lines

Alternate Interior Angles Equal.



Alternate: Across a Transversal.

Interior: Inside Parallel Lines.

Transversal: a line through Parallel Lines.

Z

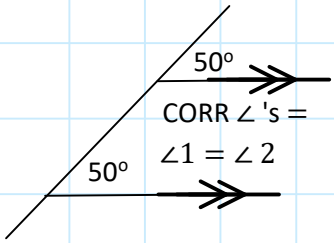
Alt Int. $\angle$'s =

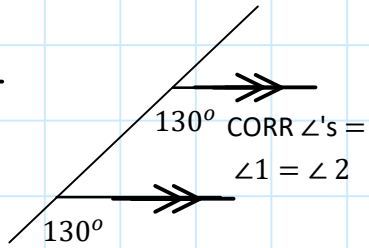
$\angle 1 = \angle 2$

Rotate the Page

Double Tick Equal Angles

Corresponding Angles Equal.

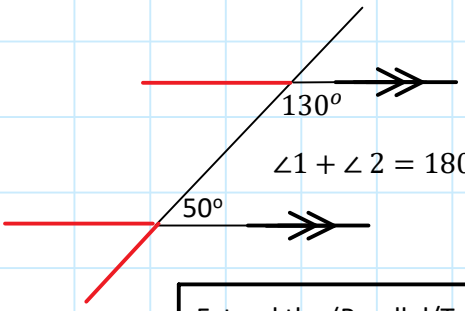




C

Co-Interiors $\angle's$ add to 180°

Co-Interior: Same side of a Transversal

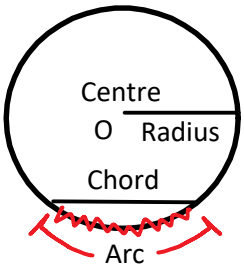


C

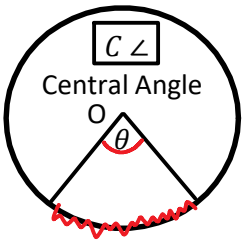
Extend the (Parallel/Transversal) Lines

M9 - 10.2 - Circles/Inscribed/Central Angles/Arc/Chords Notes

O : Centre of Circle



Chord: Edge to Edge

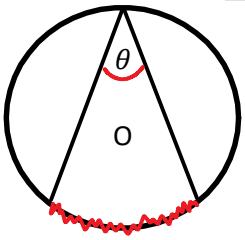


Central $\angle$: on the Centre

$\angle$: Angle

θ is a Greek symbols for an Angle

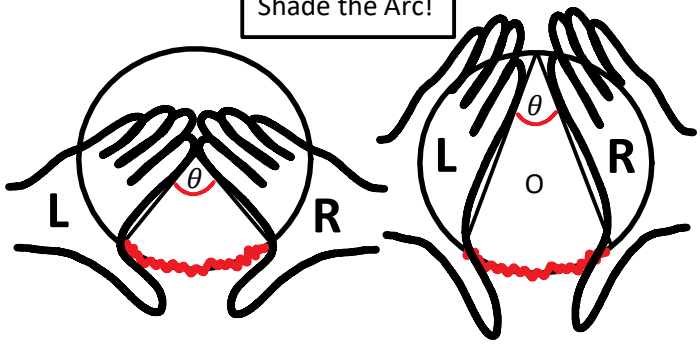
Inscribed Angle $I\angle$



Inscribed $\angle$: on the Edge

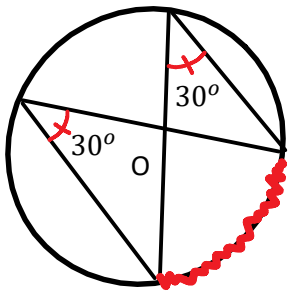
1. Make a Slice of Pie with your Left and Right Hand.
2. Central/Inscribed Angle is between your Index Fingers.
3. Arc is crust of piece of pie.

Shade the Arc!

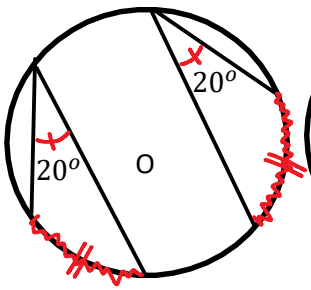


Rotate the Page

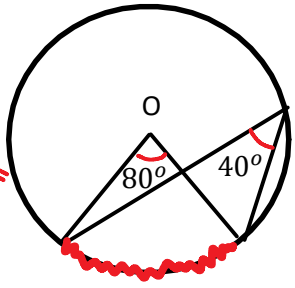
$I\angle = I\angle$



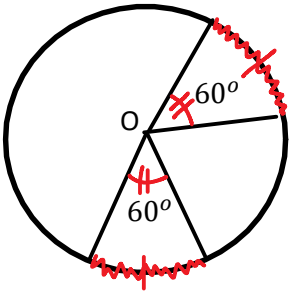
$I\angle = I\angle$



$C\angle = 2 \times I\angle$



$C\angle = C\angle$



Inscribed Angles from Same/Equal Arc are Equal.

Equal Things

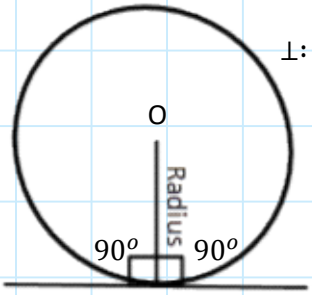
Other Equal Things

Central <u>Angles are Twice</u> Inscribed Angles from Same/Equal Arc.

Central Angles from Equal Arc are Equal.

$I\angle = \frac{1}{2} \times C\angle$ Inscribed <u>Angles are Half</u> Central Angles from Same/Equal Arc.

M9 - 10.3 - Circles/Semi/Tangents/Polygons Notes



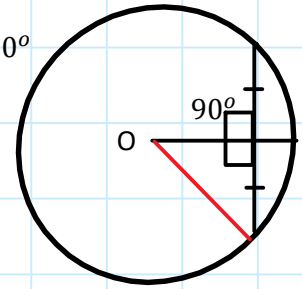
Tangent

Radius ⊥ to Tangent

⊥: Perpendicular 90^o

Tangent: Line meets Circe Edge

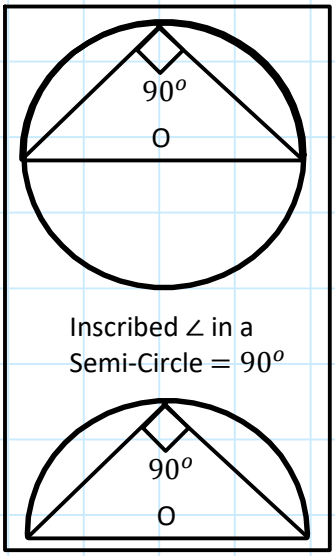
Draw a Radius



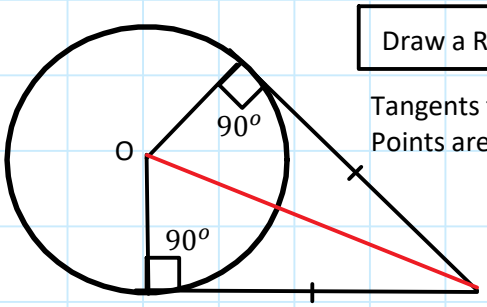
Radius ⊥ to Chord

⊥ Bisects Chord & goes through Centre

(Bisects: Cuts in Half)



Inscribed ∠ in a Semi-Circle $= 90^o$

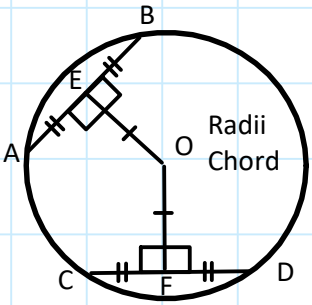


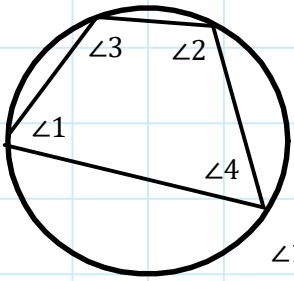
Draw a Radius to Ext Pt.

Tangents to Exterior Points are Equal.

Exterior Point (Ext Pt)

If: $OE = OF$
Then: $AB = CD$





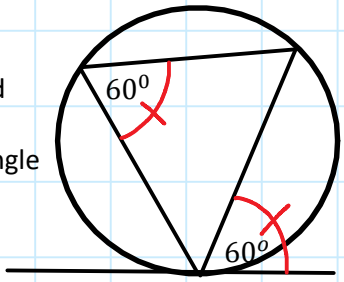
$\angle 1 + \angle 2 = 180^o$

$\angle 3 + \angle 4 = 180^o$

Interior Angles in a Cyclic Quadrilateral sum to 360^o.

$\angle 1 + \angle 2 + \angle 3 + \angle 4 = 180^o$

∠ Between Tangent and Chord = Inscribed Angle Opposite of Chord.



Int : Interior
Ext : Exterior
n : # of Sides
$\sum$: Sum

$$Int\angle' = \frac{\#\Delta' s \times 180^o}{n}$$

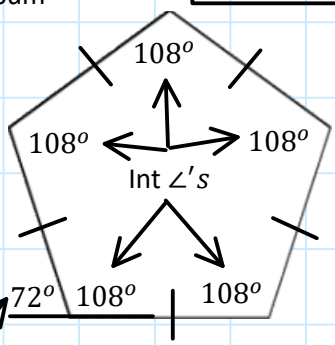
OR

$$\sum \text{Int}\angle = (n-2) \times 180^o$$

$\sum \text{Int}\angle = (5-2) \times 180^o$

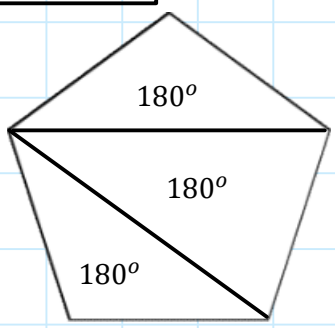
$\sum \text{Int}\angle = 3 \times 180^o$

$\sum \text{Int}\angle = 540^o$



Ext ∠

Pentagon: 5 Sides



Draw Triangles to Vertices (Without Overlap)

$$\text{Int}\angle = \frac{\sum \text{Int}\ \angle' s}{n} = \frac{(n-2)\times 180^o}{n}$$

$\text{Int}\angle = \frac{540^o}{5}$

$\text{Int}\angle = 108^o$

$\text{Ext}\angle' s \sum = 360^o$

M9 - 10.4 - Triangles/Similar/Congruent Notes

Congruent (Equal) Triangle's Triangles are Congruent if:

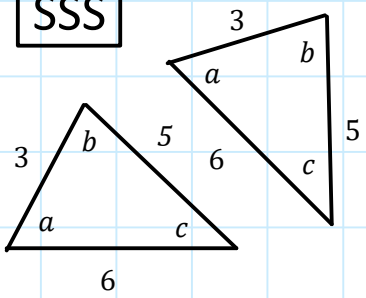
Like : Like

IN ORDER!

Side Side Side

SSS

$\angle a = \angle a$
$\angle b = \angle b$
$\angle c = \angle c$

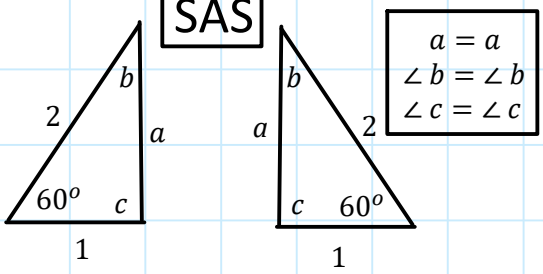


A Side then a Side then a Side

Side Angle Side

SAS

$a = a$
$\angle b = \angle b$
$\angle c = \angle c$

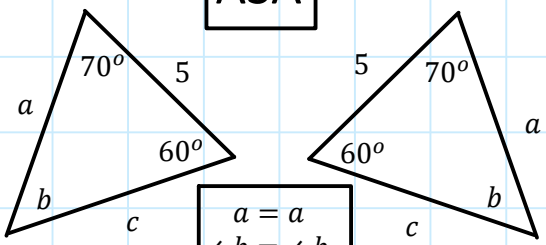


A Side then an Angle then a Side

Angle Side Angle

ASA

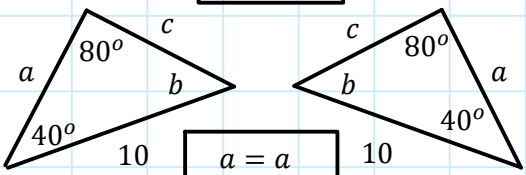
$a = a$
$\angle b = \angle b$
$c = c$



An Angle then a Side then an Angle.

Angle Angle Side

AAS



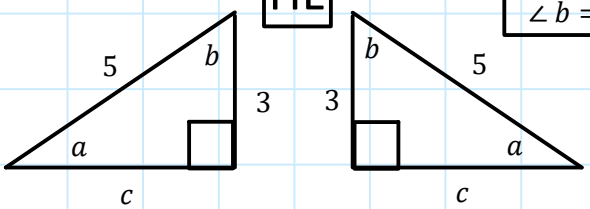
$a = a$
$\angle b = \angle b$
$c = c$

An Angle then an Angle then a Side.

Hypotenuse Leg

HL

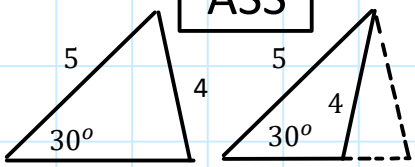
$c = c$
$\angle a = \angle a$
$\angle b = \angle b$



A Hypotenuse and a Leg

Angle Side Side

ASS



Neither!

Unless they are!

Similar Triangles

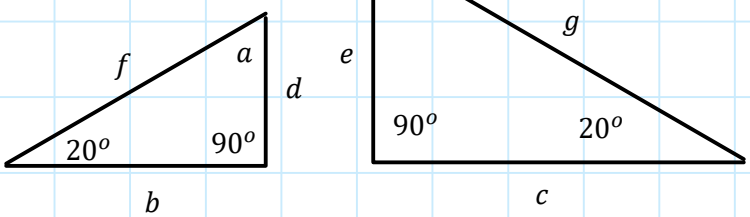
Equal Fractions

$$\frac{b}{c} = \frac{d}{e} = \frac{f}{g}$$

Can be used for all Congruent Triangles as well (for sides*)!

Angle Angle Angle

AAA



3rd Angle in a Triangle

$\angle a = \angle a$

$180^o - 90^o - 20^o = 70^o$