Circle Theorems

Arc length $\frac{\theta}{360} \cdot 2\pi r$

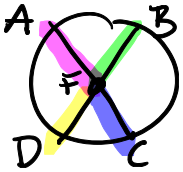
Sector Area $\frac{\theta}{360} \cdot \pi \cdot r^2$

Equation of circle $(x-h)^2+(y-k)^2=r^2$
(h,k) center
r radius

Intersecting Chord thm (angles)

$$\text{Angle} = \frac{\text{Arc} + \text{Arc}}{2}$$

Intersecting Chord Thm (segments)



$\overline{AF} \cdot \overline{FC} = \overline{BF} \cdot \overline{FD}$

Chord $\overline{AB}$

Diameter $\overline{MN}$

Radius $\overline{CD}$

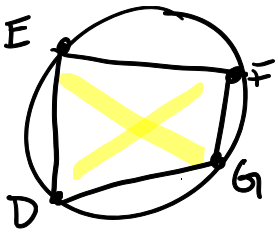
Secant (line) $\overleftrightarrow{EF}$

tangent (line) $\overleftrightarrow{GH}$

Point of tangency G

tangent segment $\overline{MN}$

Inscribed Quadrilaterals



opposite ∠'s supplementary
$m\angle F + m\angle D = 180$
$m\angle E + m\angle G = 180$

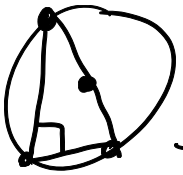
Central Angle

vertex always center
$\angle ACB$

minor Arc $\overset{\frown}{AB}$

Central Angle = minor Arc

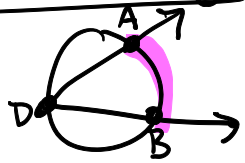
Inscribed Triangle



*If hyp is diameter, then it is Rt Δ

*If it is Rt Δ, then hyp is diameter

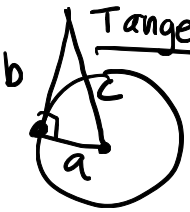
Inscribed Angle



$\angle ADB$

$$\text{Angle} = \frac{\text{Arc}}{2}$$

Tangent Thms



*Tangent makes Rt ∠ with radius

*use Pythag thm to find missing sides or prove its a tangent

If $a^2+b^2=c^2$, then its a tangent

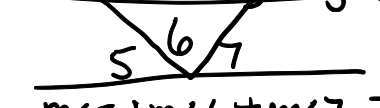
Hat thm

Semicircle

Vertical ∠'s ≅

$\angle 1 \cong \angle 2$
$\angle 3 \cong \angle 4$

Supplementary Angles



$m\angle 5 + m\angle 6 + m\angle 7 = 180°$