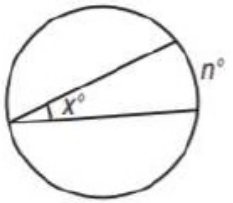
Name: _____ Block: ____

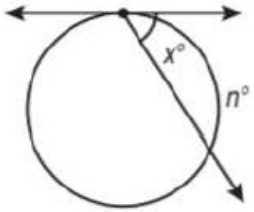
Properties of Circles

Angle measure is represented by x. Arc measure is represented by m and n. Lengths are given by a, b, c, and d.



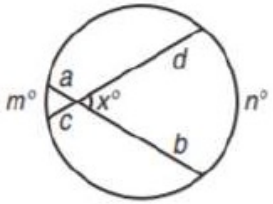
Inscribed Angle

$$x = \frac{1}{2}n$$



Tangent-Chord

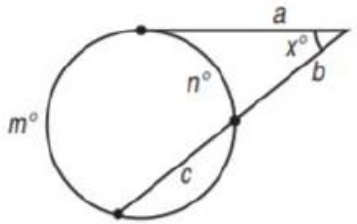
$$x = \frac{1}{2}n$$



2 Chords

$$a \cdot b = c \cdot d$$

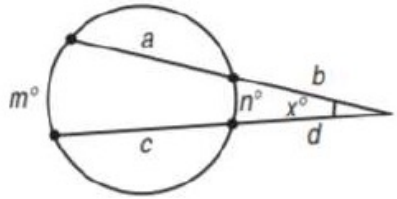
$$x = \frac{1}{2}(m + n)$$



Tangent-Secant

$$a^2 = b(b + c)$$

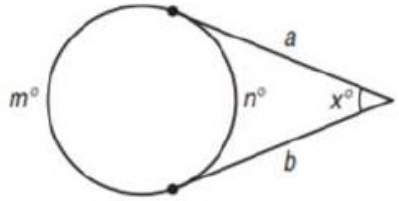
$$x = \frac{1}{2}(m - n)$$



2 Secants

$$b(a + b) = d(c + d)$$

$$x = \frac{1}{2}(m - n)$$

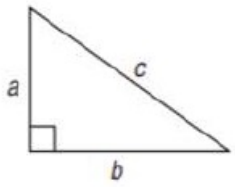


2 Tangents

$$a = b$$

$$x = \frac{1}{2}(m - n)$$

Right Triangle Formulas



Pythagorean Theorem:

If a right triangle has legs with measures a and b and hypotenuse with measure c, then...

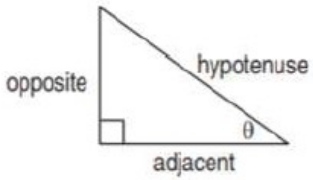
$$a^2 + b^2 = c^2$$

Coordinate Geometry Properties

Distance Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Midpoint: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

Trigonometric Ratios:

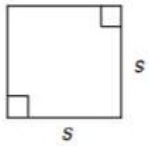


$$\sin\theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

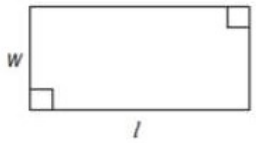
$$\cos\theta = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan\theta = \frac{\text{opposite}}{\text{adjacent}}$$

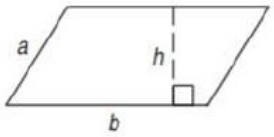
Plane Figure Formulas



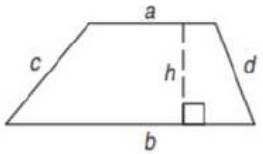
$P = 4s$
$A = s \cdot s$



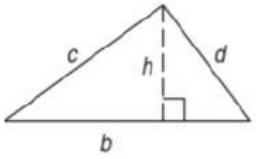
$P = 2l + 2w$
$A = lw$



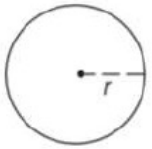
$P = 2a + 2b$
$A = bh$



$P = a + b + c + d$
$A = \frac{1}{2}h(a + b)$



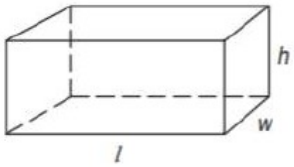
$P = b + c + d$
$A = \frac{1}{2}bh$



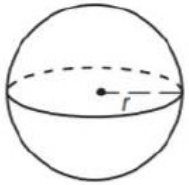
$C = 2\pi r$
$A = \pi r^2$

Sum of angle measures = $180(n-2)$,
where n = number of sides

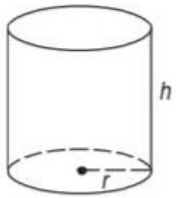
Solid Figure Formulas



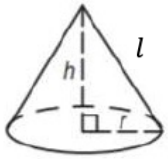
$SA = 2lw + 2lh + 2wh$
$V = lwh$



$SA = 4\pi r^2$
$V = \frac{4}{3}\pi r^3$

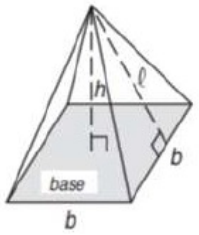


$SA = 2\pi r^2 + 2\pi rh$
$V = \pi r^2 h$



$SA = \pi r^2 + \pi rl$
$V = \frac{1}{3}\pi r^2 h$

$l = \sqrt{r^2 + h^2}$



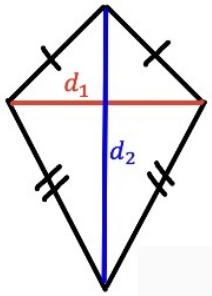
SA = (Area of the base) + $\frac{1}{2}$(number of sides)$(b)(\ell)$

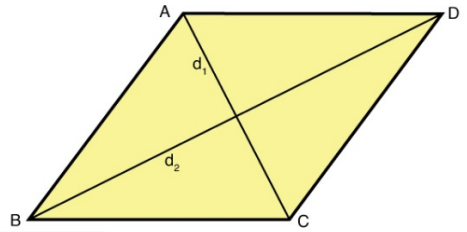
$V = \frac{1}{3}$(Area of the base)(h)

Euler's Formula for Polyhedra:

$V - E + F = 2$

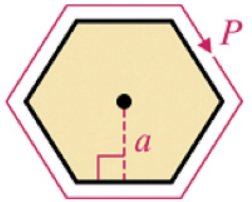
vertices minus edges plus faces = 2

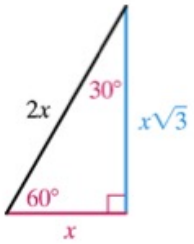


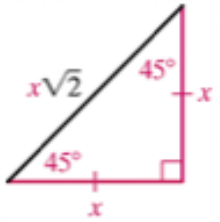


$$A = \frac{d_1 \cdot d_2}{2}$$

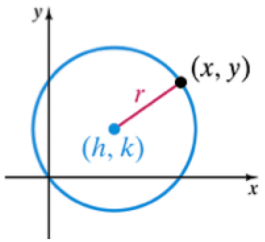
$$A = \frac{1}{2}aP$$







An equation of a circle with center (h, k) and radius r is $(x - h)^2 + (y - k)^2 = r^2$.



Heron's Formula

$$s = \frac{a + b + c}{2}$$

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$