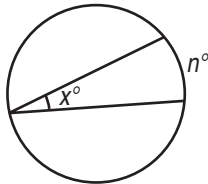# GEOMETRY FORMULA SHEET – PAGE 1

Formulas that you may need to solve questions on this exam are found below.
You may use calculator π or the number 3.14.
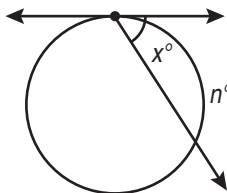
Properties of Circles

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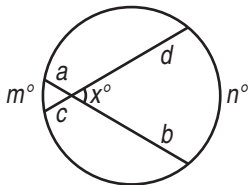

Inscribed Angle
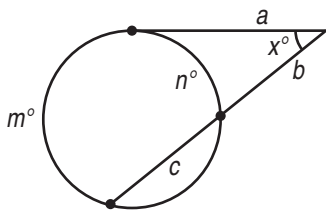
$$x = \frac{1}{2}n$$

Tangent-Chord

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

2 Chords

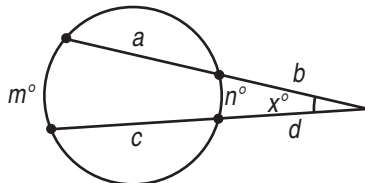$$a \cdot b = c \cdot d$$

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

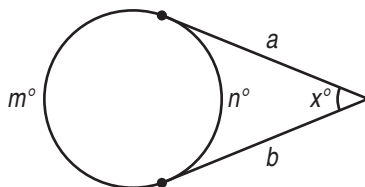**Tangent-Secant**

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

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

2 Secants

$$b(a + b) = d(c + d)$$
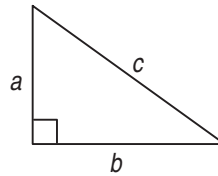
$$x = \frac{1}{2}(m - n)$$

2 Tangents

$$a = b$$

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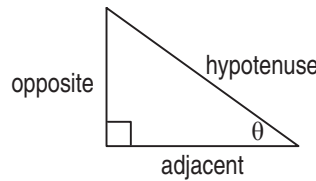
Right Triangle Formulas

Pythagorean Theorem:

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

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

Trigonometric Ratios:

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

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

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

Coordinate Geometry Properties

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

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

Slope: $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

Point-Slope Formula: $(y - y_1) = m(x - x_1)$
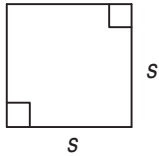
Slope Intercept Formula: $y = mx + b$

Standard Equation of a Line: $Ax + By = C$

GEOMETRY FORMULA SHEET – PAGE 2

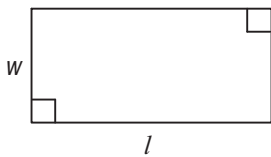Formulas that you may need to solve questions on this exam are found below.
You may use calculator π or the number 3.14.
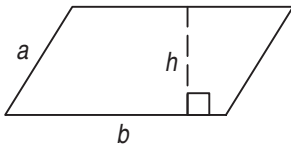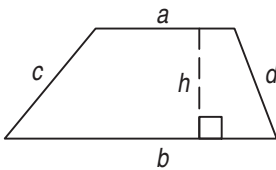
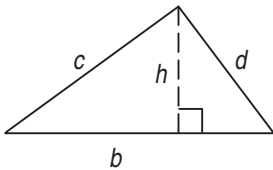### Plane Figure Formulas

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

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

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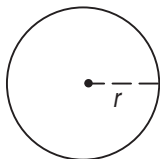
$P = a + b + c + d$
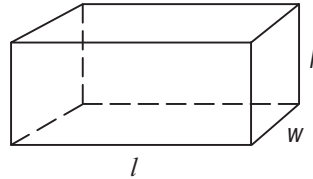$A = \frac{1}{2}h(a + b)$

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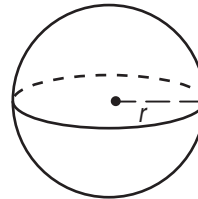$A = \frac{1}{2}bh$

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

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

Solid Figure Formulas
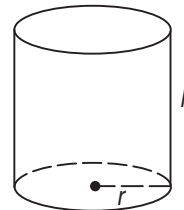
$SA = 2lw + 2lh + 2wh$
$V = lwh$
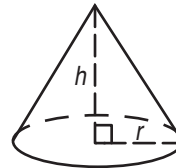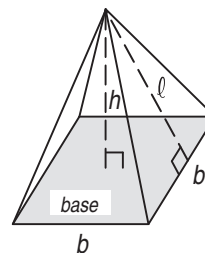
$SA = 4\pi r^2$
$V = \frac{4}{3}\pi r^3$

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

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

$SA =$ (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 $= 2$