

# ALGEBRA / GEOMETRY FORMULA SHEET

## PERIMETER and CIRCUMFERENCE

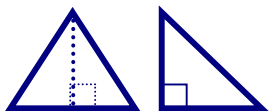
Perimeter of a Square (p) = 4s

Perimeter of a Rectangle (p) = 2b + 2h or P = 2l + 2w

Circumference of a Circle (c) =  $2\pi r$  or  $C = \pi d$  [Perimeter / Circumference: Measurement (Distance) around the outside]

## AREA of PLANE FIGURES

Area of a Triangle =  $\frac{bh}{2}$



Area of an Equilateral Triangle =  $\frac{s^2\sqrt{3}}{4}$



Area of a Trapezoid =  $\frac{(b_1 + b_2)h}{2}$



Area of a Square =  $s^2$



Area of a Rectangle = bh



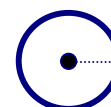
Area of a Parallelogram = bh



Area of a Rhombus =  $\frac{d_1 \cdot d_2}{2}$



Area of a Circle =  $\pi r^2$



## SOLIDS

[LA – Lateral Surface Area, SA – Total Surface Area, A = Area, V = Volume, B = Area of Base]

### Prism and Cylinders

LA = ch

SA = LA + 2B

V = Bh

### Pyramids and Cones

\*LA =  $\frac{p}{2}$  or \*LA =  $\frac{c}{2}$

SA = LA + B

V =  $\frac{Bh}{3}$

### Sphere

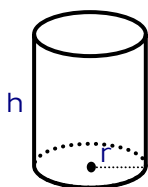
A =  $4\pi r^2$

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

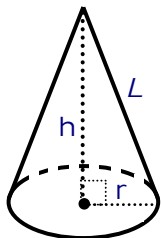
[see these shapes on the back]

## 3-Dimensional SHAPES [solids]:

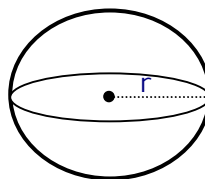
Cylinder



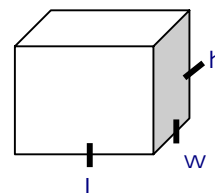
Cone



Sphere



Cube



[note: there are several different types of prisms]

### Prism

[one type of prism is a cube]

# ALGEBRA / GEOMETRY FORMULA SHEET

**Ordered Pair** (x, y)

## Linear Functions:

**Slope-Intercept Form**

$$y = mx + b$$

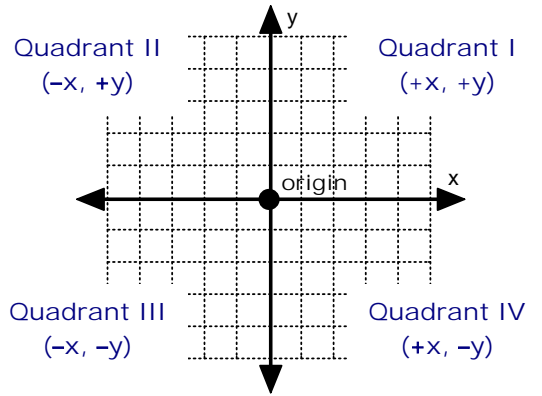
**Point-Slope Form of an equation**

$$y - y_1 = m(x - x_1)$$

**Standard Form of an equation**

$$Ax + Bx = C$$

**Slope (m):**  $\frac{\text{rise}}{\text{run}}$       $m = \frac{y_2 - y_1}{x_2 - x_1}$



## Using two points on a graph:

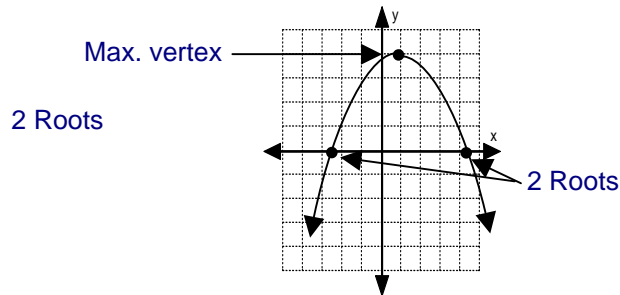
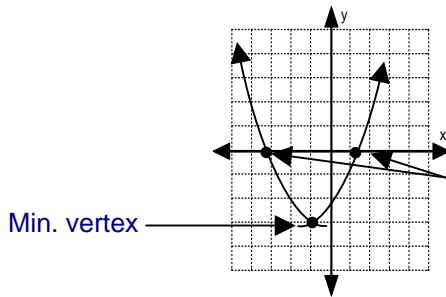
**Distance (D):**  $D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

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

## Quadratic Functions:

**Quadratic Equation:**  $y = Ax^2 + Bx + C$

**Quadratic Formula:**  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$   
[finding the roots]



## Interior Angles

**Triangle:** all angles add up to  $180^\circ$

**Regular Polygon:**  $(n - 2)180^\circ$

| Type          | # of sides | Type     | # of sides |
|---------------|------------|----------|------------|
| Quadrilateral | 4          | Pentagon | 5          |
| Hexagon       | 6          | Heptagon | 7          |
| Octagon       | 8          | Decagon  | 10         |

## Special Triangles:

$30^\circ - 60^\circ - 90^\circ$ : opp  $30^\circ \rightarrow 1$ , opp  $60^\circ \rightarrow \sqrt{3}$ , opp  $90^\circ \rightarrow 2$

$45^\circ - 45^\circ - 90^\circ$ : opp  $45^\circ \rightarrow 1$ , opp  $90^\circ \rightarrow \sqrt{2}$

**Trig Ratios:**  $\sin = \frac{\text{opposite leg}}{\text{hypotenuse}}$ ,  $\cos = \frac{\text{adjacent leg}}{\text{hypotenuse}}$ ,  $\tan = \frac{\text{opposite leg}}{\text{adjacent leg}}$

|                       |               |   |               |
|-----------------------|---------------|---|---------------|
| Trig: Right Triangles |               |   |               |
| S                     | $\frac{o}{h}$ | C | $\frac{a}{h}$ |
| T                     | $\frac{o}{a}$ |   |               |