

## Algebra 2 - Formulas To Know

### Quadratic Formula:

when  $ax^2 + bx + c = 0$  then  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Vertex  $x$  coordinate is at  $x = \frac{-b}{2a}$

Discriminant is  $b^2 - 4ac$

Vertex Form:  $y = a(x-h)^2 + k$  where  $(h, k)$  is the Vertex

Axis of Symmetry:  $x = h$

### Linear Equations

Slope-Intercept form:  $y = mx + b$

Point-slope form:  $y - y_1 = m(x - x_1)$

Standard Form:  $Ax + By = C$  where  $A, B, C$  are integers

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

Parallel lines have same slope, different  $y$ -intercept

Perpendicular lines have opposite reciprocal slopes

### Factoring Patterns

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

$$a^3 - b^3 = (a-b)(a^2 + ab + b^2)$$

$$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$$

Imaginary Unit

$$i^2 = -1$$