

**CP Algebra 2**  
**Equations of Lines Information**

**Name:** \_\_\_\_\_

**Standard Form of a Line:**  $Ax + By = C$  where  $A, B,$  and  $C$  are integers (no fractions!)

**Slope-Intercept Form of a Line:**  $y = mx + b$  [  $m =$  slope;  $b =$  y-intercept ]

**Special Formulas:** Given 2 Points:  $(x_1, y_1); (x_2, y_2)$

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

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

**Special Slopes:**

Vertical = undefined

Horizontal = 0

Parallel Lines = Same Slope

Perpendicular Lines = Opposite Reciprocal Slopes

**Special Line Equations:**

Vertical:  $y = \underline{\hspace{2cm}}$

Horizontal  $x = \underline{\hspace{2cm}}$

**Special Lines involving Triangles:**

- 1.) Perpendicular Bisector Contains MIDPOINT of a side; PERPENDICULAR to the side.
- 2.) Median Connects VERTEX to MIDPOINT of opposite side.
- 3.) Altitude Contains VERTEX; PERPENDICULAR to opposite side.

**Special Points involving Triangles:**

- 1.) Circumcenter Where PERPENDICULAR BISECTORS intersect.
- 2.) Centroid Where MEDIANS intersect
- 3.) Orthocenter Where ALTITUDES intersect.