

## SMS Algebra I Mid Term Exam

### Algebra I Midterm Formula Sheet

Slope Intercept form of an equation:

$$y = mx + b$$

Point Slope form of an equation:

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

Standard form of an equation:

$$Ax + By = C$$

Slope

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

Direct variation

$$y = kx$$

Inverse variation

$$y = \frac{k}{x}$$

Explicit formula for an arithmetic sequence:

$$\text{given } a_1 \text{ and } d; \quad a_n = a_1 + d(n-1)$$

Recursive formula for an arithmetic sequences:

$$\text{given } a_1 \text{ and } d; \quad a_n = a_{n-1} + d$$

Piecewise function format

$$f(x) = \begin{cases} mx + b & x < w \\ nx + c & w \leq x \leq v \\ px + d & x > v \end{cases}$$

when:\*

$$x < w$$

$$w \leq x \leq v$$

$$x > v$$

Absolute Value

$$y = a|x - h| + k$$

\*note the inequality symbols may change in direction and equality depending on the problem constraints.