**3.4 Slopes of Lines**

**Slope of a line- the ratio of the vertical change to the horizontal change between any 2 points on a line.**

**Slope or “m”= change in y =**

 **change in x**

**The slope “m” of a line containing two points with coordinates (x1, y1) and (x2, y2) is given by the formula m =** $\frac{y-y}{x-x}$

**where x1**$\ne $**x2**

**Slope is positive- line is rising from left to right**

**Slope is negative- line is falling from left to right**

**Slope is 0-horizontal line (ex. the line y=3)**

**Slope is undefined- vertical line (ex. the line x=5)**

**Parallel Lines**

**Two nonvertical lines are parallel iff their slopes are equal.**

**Vertical lines //Vertical lines**

**Horizontal lines//Horizontal lines**

**Perpendicular Lines**

**Two nonvertical lines are perpendicular iff the product of their slopes is -1.**

**(their slopes are negative reciprocals)**

**Vertical lines Horizontal lines**