

$$5x - 2y \leq 75$$



$$\begin{bmatrix} a & b \\ c & d \end{bmatrix}$$



$$S = Pe^{rt}$$



$$APY = \left(1 + \frac{r}{n}\right)^n - 1$$

## Math 1090 ~ Business Algebra

### Section 1.3 Equations of Lines

Objectives:

- Determine the slope, x-intercept and y-intercept of a line.
- Determine whether lines are parallel, perpendicular or neither.
- Write the equation of a line in several forms.

### Linear Equations in Two Variables

The equation of a non-vertical line can be written in the form  $y = mx + b$ , where  $m$  and  $b$  are real numbers.

### Slope

Parallel lines

Perpendicular lines

Equations of a line:

Slope-intercept

Point-slope

Ex 1:

a) Find the slope of the line between  $(3,2)$  and  $(-7,-5)$ .

b) Find the equation of the line in part a.

Ex 2: Find the equation of the line with a slope of  $-3$  and  $y$ -intercept  $(0,4)$ .

Ex 3: For  $4 - 5y + 7x = -10$ , find the  $y$ -intercept and the slope.

Ex 4: Find the equation of a line through  $(4,-3)$  and  $(4,5)$ .

Ex 5: Find the equation of the line through  $(1, -5)$

a) parallel to  $3x - 6y = 5$

b) perpendicular to  $3x - 6y = 5$

Ex 6: Water freezes at  $32^{\circ}\text{F}$ , which is  $0^{\circ}\text{C}$ . Water boils at  $212^{\circ}\text{F}$  which is the same as  $100^{\circ}\text{C}$ . Write a linear equation that fits these data.