Writing Linear Equations

When you have the slope and a point the line passes through.

(2, 4) m=1/2
x y

1. Write the formula for a linear equation.

$$y = mx + b$$

2. Replace m with the slope and replace x and y with the coordinates you were given.

$$4 = (1/2)(2) + b$$

3. Solve for b.

$$4 = 1 + b$$
$$-1 \quad -1$$
$$3 = b$$

4. Write the equation in y = mx + b form, replacing the m and the b with your slope and your newly found y-intercept.

$$y = 1/2x + 3$$

When you have 2 points and no slope.

(1, 3) and (4, -6)

1. Find the slope.

$$\frac{-6 - 3}{4 - 1} = \frac{-9}{3} = -3$$

2. Follow the steps from the previous page.

$$y = mx + b$$

$$3 = (-3)(1) + b$$
$$3 = -3 + b$$
$$+3 \quad +3$$
$$6 = b$$

$$y = -3x + 6$$