Guided Notes 6.1: Slope-Intercept Form

A. Slope-Intercept Form of an Equation

If a line has a slope m and y-intercept $(0, \mathbf{b})$, then the line is described by the equation:
(Write the Slope-Intercept Equation)

B. Write the equation of each line in Slope-intercept form.

1. Slope is 3, and (2,5) is on the line.

Step 1: We know the slope, $\mathbf{m}$, = 3. We need the y-intercept, $\mathbf{b}$, y=3x +b.

Substitute the point (2,5) in for x and y to get b. (Show your work for solving for the y-intercept.)

Step 2: Write the equation: $y = mx + b$.

2. The line passes through (0, 5) and (2, 13).

Step 1: Use the points to find the slope.

3. The line passes through (1, 4) and (3, 18).

C. Write each equation in slope-intercept form. Then graph the line.
    1. $y = 5x - 4$

    2. $2x + 6y = 6$

D. Identify the slope and y-intercept of the graph that represents each linear situation and interpret what they mean. Then write an equation in slope-intercept form and use it to solve the problem.

1. For one taxi company, the cost y in dollars of a taxi ride is a linear function of the distance x in miles traveled. The initial charge is $2.50, and the charge per mile is $0.35. Find the cost of riding a distance of 10 miles.

2. A chair lift descends from the mountain top to pick up skiers at the bottom. The height in feet of the chairlift is a linear function of the time in minutes since it begins descending as shown in the graph. Find the height of the chairlift 2 minutes after it begins descending.

E. Reflect
1. In the example involving the taxi, how would the equation change if the cost per mile increased or decreased? How would this affect the graph?

2. What are some advantages to using slope-intercept? How about disadvantages?