

Algebra 1
2-1 Slope-Intercept Form

Name _____
Date _____ **A#3**

Goal: Write and graph linear equations using slope-intercept form



Warm Up: Alani wants to buy a \$360 bicycle. She is considering two payment options. The image shows Option A, which consists of making an initial down payment then smaller, equal-sized weekly payments. Option B consists of making 6 equal payments over 6 weeks.



- a. What factors should Alani take into consideration before she decides which option is best?

- b. Suppose Alani could modify Option A and still pay off the bike in 5 weeks. Describe the relationship between the down payment and the weekly payments.

Slope-Intercept Form

$$y = mx + b$$

x : y : m : b :

Example 1: Graphing using Slope-Intercept Form

Graph $y = \frac{3}{5}x + 2$.



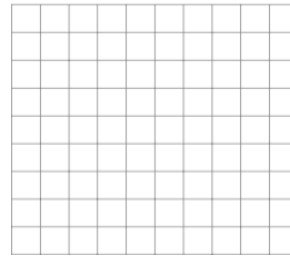
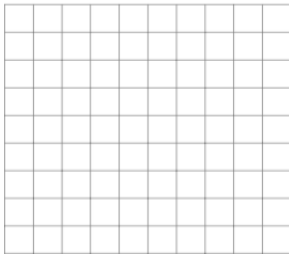
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Try It! Describe and then sketch the graph of each equation.

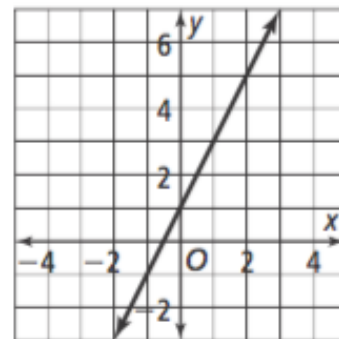
a. $y = x + 3$

b. $y = -\frac{2}{3}x - 5$



Example 2: Writing the equation of a line from a graph using slope-intercept form

What is the equation of the line in slope-intercept form?

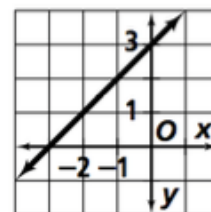
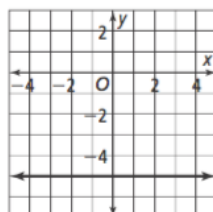
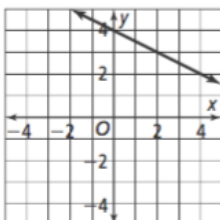


Try It! What is the equation of the line in slope-intercept form?

a.

b.

c.



Example 3: Equation of line from two points

Write the equation in slope-intercept form of the line that passes through the given points $(-1,3)$ and $(-3,1)$

Steps:

1. Find _____
2. Substitute _____ and
one _____ into

3. Substitute _____ and
_____ into _____

Try It! Write the equation in slope-intercept form of the line that passes through the given points.

a. $(-4,8)$ and $(4,6)$

b. $(9,2)$ and $(-3,-2)$

Example 4: Application

Zachary purchased a computer for \$1,800 on a payment plan. Three months after he purchased the computer, his balance was \$1,350. Five months after he purchased the computer, his balance was \$1,050.



- a. What is an equation that models the balance B after m months?

- b. What does the slope signify in this equation and why?

- c. In about how many months will be pay it off?

Try It! If he buys a less expensive computer for \$1350 under the same plan, what is an equation that models this new situation? How long will it take to pay this one off?