Writing Linear Equations in Slope-Intercept Form

CHAPTER 5 SECTION 1

Slope-Intercept Form

- Slope-Intercept form:

$$y=mx+b$$

$$y=3x+4$$

  - Where m=slope and b=y-intercept

Writing Equation of a Line given Slope and Y-intercept

- If you are given slope and y-intercept…plug them into the equation!
  - Example: m=2 and y-int=3
    - Then: $y = 2x + 3$

Examples:

- 1. m=-4 y-int=3

$y = mx + b$

$y = -4x + 3$

- 2. m=1/2 y-int=-5

$y = mx + b$

$y = \frac{1}{2}x - 5$

Examples:

- 3. m=5/6 y-int: (0,-2)

$$y = \frac{5}{6}x - 2$$

- 4. m=0 y-int: (0,4)

$$y = mx + b$$

$$y = 0x + 4$$

$$y = 4$$

Class Work

- Complete Worksheet

Writing Linear Equations Given the Slope and a Point

CHAPTER 5 SECTION 2

Still using y=mx+b…

- You will write the equation of a line given the slope, m, and a point (x,y)
- Steps:
  - Plug Slope into Equation (m)
  - Plug in the x and y values (x,y)
  - Solve for b
  - Re-write equation in slope-intercept form

Example:

x y

- 1. m=2 and (0,4)

$y = mx + b$

m=2
x=0
y=4
b=

$y = 2x + b$

$4 = 2(0) + b$

$4 = b$

$y = 2x + 4$

- 2. m=-4 and (-2,6)

m=-4
x=-2
y=6
b=-2

$y = mx + b$

$6 = -4(-2) + b$

$6 = 8 + b$

$-8 \quad -8$

$-2 = b$

$y = -4x - 2$

Example:

- 3. m=0 and (2,-9)

$y = mx + b$

$-9 = 0(2) + b$

$-9 = b$

$y = 0x + -9$

$y = -9$

$m = 0$
$b = -9$
$x = 2$
$y = -9$

4. m=5 and (-1,-1)

$y = mx + b$

$-1 = 5(-1) + b$

$-1 = -5 + b$

$+5 \quad +5$

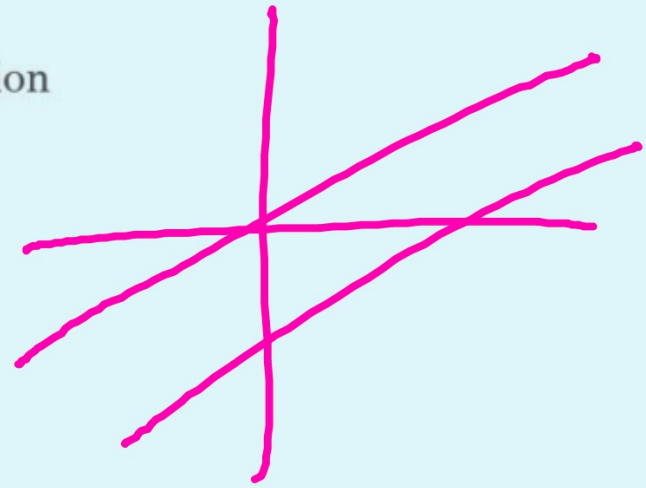
$4 = b$

$y = 5x + 4$

$b = 4$
$m = 5$
$x = -1$
$y = -1$

Parallel Lines

- To write an equation that is parallel to another,
  - keep the slope the same
  - plug in the new (x,y) point
  - Solve for b
  - Rewrite the equation



y = mx + b

y = 3x - 2

Examples:

1. Write an equation parallel to y=3x-2 that passes through the point (-2,1):

same slope

y = mx + b

1 = 3(-2) + b

1 = -6 + b

+6 +6

7 = b

x = -2

y = 1

m = 3

b =

y = 3x + 7

2. Write an equation parallel to y=1/2x+4 that passes through the point (6,0):

y = mx + b

0 = $\frac{1}{2}$(6) + b

0 = 3 + b

-3 -3

-3 = b

m = $\frac{1}{2}$

x = 6

y = 0

b =

y = $\frac{1}{2}$x - 3

Class Work

- Complete Worksheet

Homework

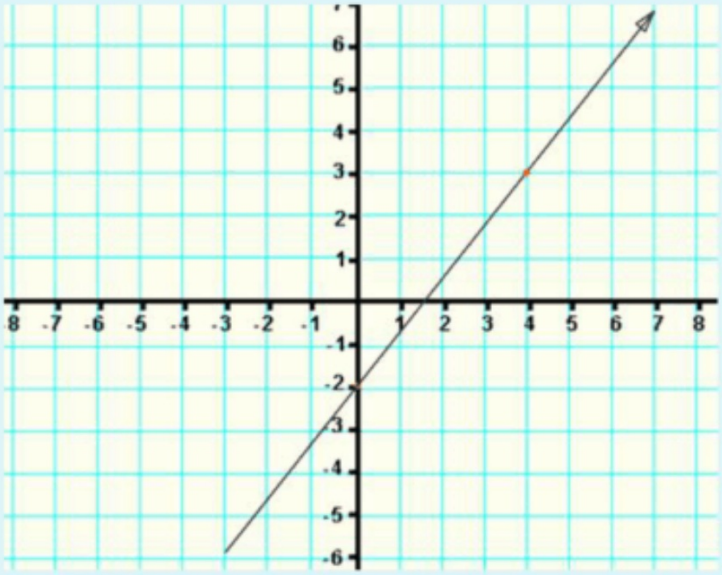
- Page 276 # 12-19
- Page 282 #12-23, 32-34

Writing an Equation of a Line from a Graph

- Use the graph to find the slope and y-intercept.
- Plug the slope and y-intercept into the equation

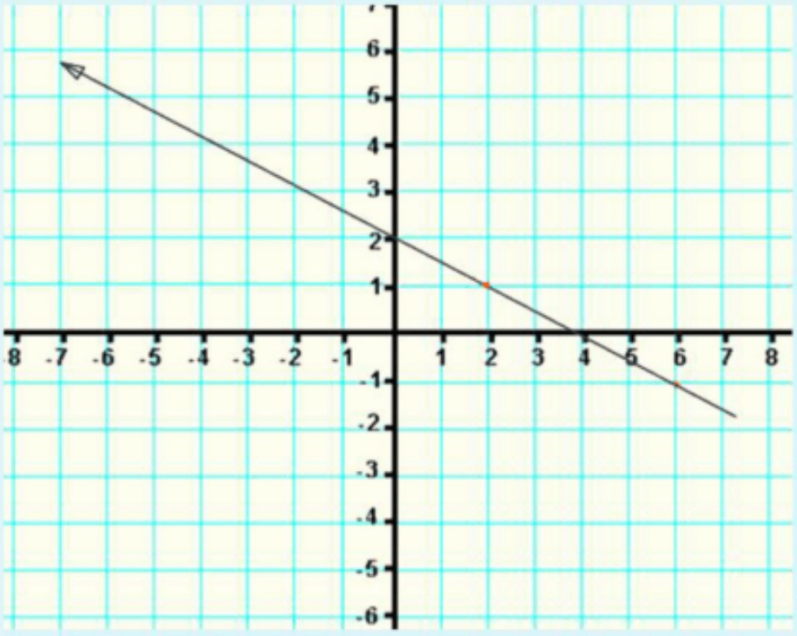
Example:

- Find the slope
  - m=
- Find the y-intercept
  - b=
- Equation:
  - y= x+



Example:

- Find the slope
  - m=
- Find the y-intercept
  - b=
- Equation:
  - y= x+



HMWK- Day 2

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