Date: _____

Determining the Equation of a Line

Recall:

slope → $m = \frac{\text{rise}}{\text{run}}$

change in "y" → $= \frac{\Delta y}{\Delta x}$ ← change in "x"

Slope Intercept Form

$$y = mx + b$$

Example 1

Given the slope and y-intercept, state the equation.

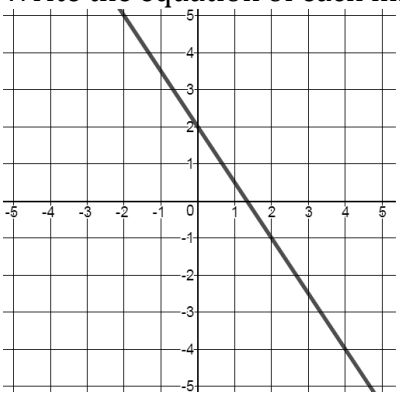
a. $m = 5$, $b = 2$

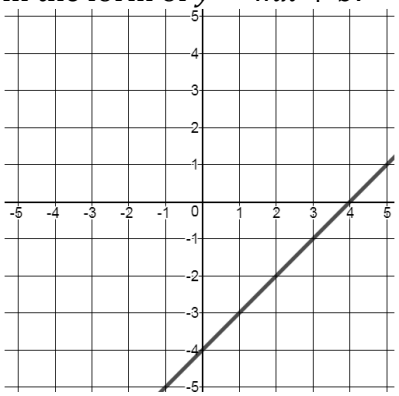
b. $m = -\frac{5}{3}$, $b = -6$

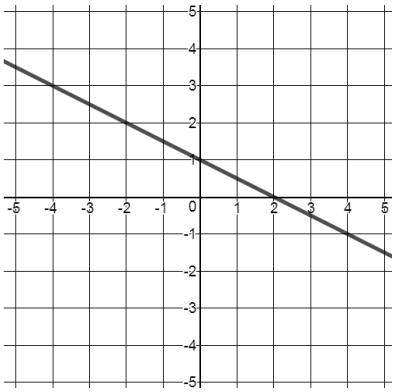
c. $m = \frac{3}{4}$, $b = \frac{5}{3}$

Example 2

Write the equation of each line in the form of $y = mx + b$.







Example 3

Find the equation of the line represented by the table of values.

a.

x	y
–4	–11
–3	–7
–2	–3
–1	1
0	5

b.

x	y
–1	9
0	6
1	3
2	0
3	–3

c.

x	y
1	8
2	5
3	2
4	–1
5	–4

d.

x	y
5	–10
2	–4
–1	2
–4	8
–7	14

Homework:

1. For the following equations, determine the slope and y-intercept.

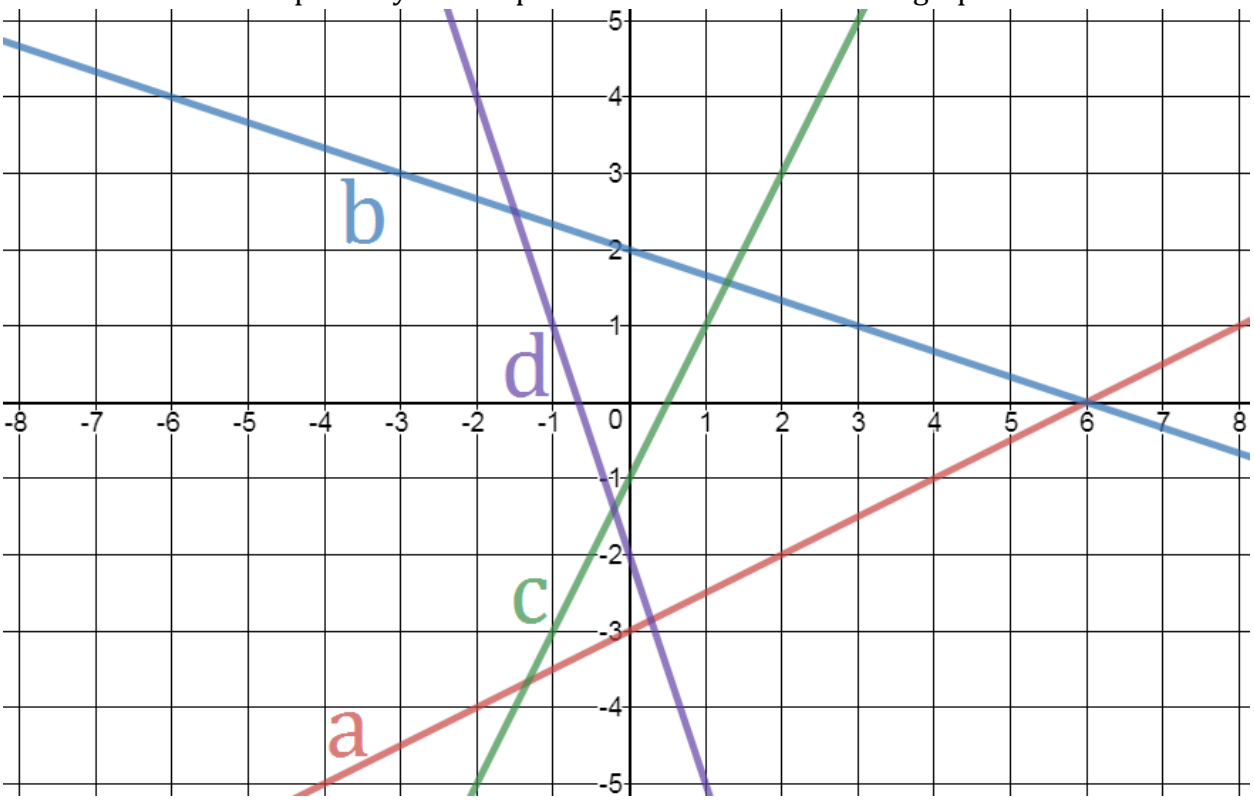
a. $y = 2x$ b. $y = 4x - 5$ c. $y = -x + 6$ d. $y = -\frac{2}{3}x + \frac{3}{4}$

e. $y = -\frac{3}{2}x + 4$ f. $y = 3x - \frac{7}{4}$ g. $y = -\frac{4}{7}x - \frac{1}{3}$ h. $y = -\frac{1}{2}x + \frac{5}{2}$

2. Write the equation of the line given the slope and y-intercept.

	Slope	y-intercept
a.	2	5
b.	3	3
c.	–1	–4
d.	$-\frac{3}{2}$	$\frac{5}{7}$
e.	$-\frac{7}{4}$	–7
f.	–2	8

3. Determine the slope and y-intercept for the lines shown on the graph below.



4. Find the equation of the line represented by the table of values.

a.

x	y
–2	–10
–1	–7
0	–4
1	–1
2	2

b.

x	y
–1	8.5
0	7
1	5.5
2	4
3	2.5