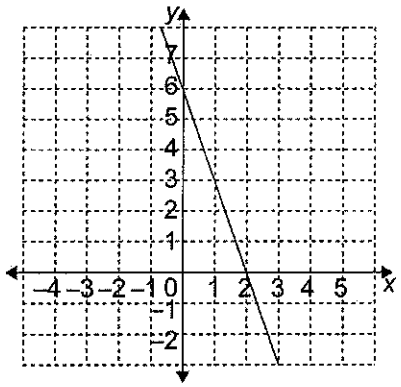
6.1 Day 2 Worksheet: The Equation of a Line in Slope *y*-Intercept Form: $y = mx + b$

1. Complete the table.

	Equation	Slope	*y*-Intercept
a)	$y = 4x + 1$	$m = 4$	$b = 1$
b)	$y = \frac{x}{2} - 3$	$m = \frac{1}{2}$	$b = -3$
c)	$y = -2x$	$m = -2$	$b = 0$
d)	$y = -x + 2$	$m = -1$	$b = 2$

2. Find the slope and *y*-intercept of each line.

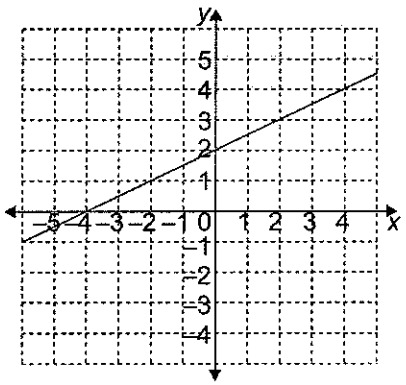
a)



slope: $m = 3$

y-intercept: $b = 6$

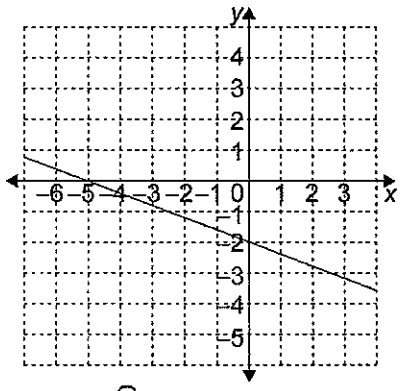
b)



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

y-intercept: $b = 2$

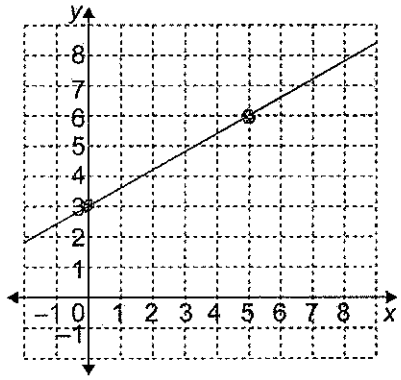
c)



slope: $m = -\frac{2}{5}$

y-intercept: $b = -2$

d)



slope: $m = \frac{3}{5}$

y-intercept: $b = 3$

3. Write the equation of each line in question 2.

a) $y = 3x + 6$

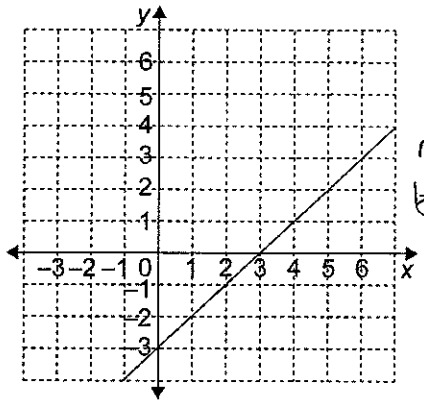
b) $y = \frac{1}{2}x + 2$

c) $y = -\frac{2}{5}x - 2$

d) $y = \frac{3}{5}x + 3$

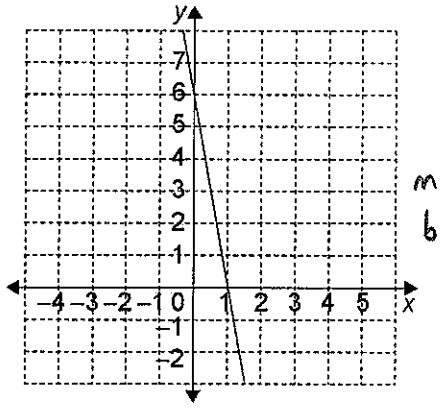
4. Write the equation of each line.

a)



Equation: $y = x - 3$

b)



Equation: $y = -6x + 6$

5. Write the equation of a line with each slope and *y*-intercept.

	Slope	*y*-Intercept
a)	–2	1
b)	$\frac{2}{3}$	–4
c)	5	0
d)	$-\frac{3}{2}$	3

a) $y = -2x + 1$

b) $y = \frac{2}{3}x - 4$

c) $y = 5x$

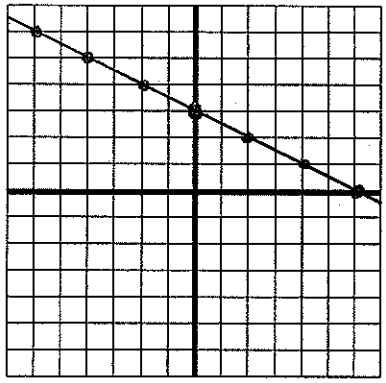
d) $y = -\frac{3}{2}x + 3$

6. Find the slope and *y*-intercept of each line, if they exist. Graph each line.

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

slope: $m = -\frac{1}{2}$

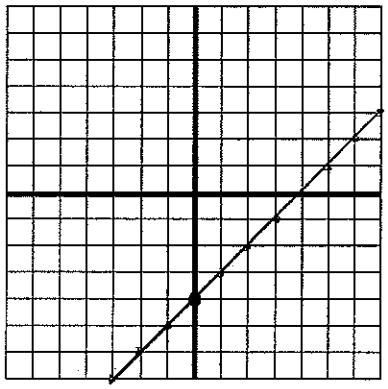
y-intercept: $b = 3$



b) $y = x - 4$

slope: $m = 1$

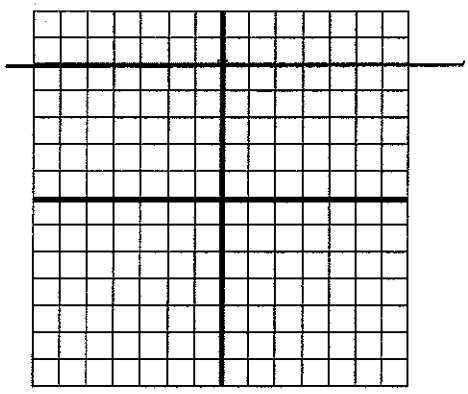
y-intercept: $b = -4$



c) $y = 5$

slope: $m = 0$

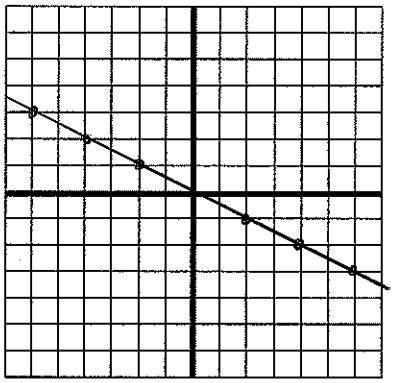
y-intercept: $b = 5$



d) $y = -\frac{x}{2}$

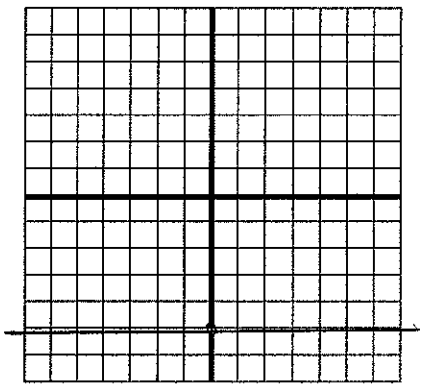
slope: $m = -\frac{1}{2}$

y-intercept: $b = 0$



7. State the slope and the y-intercept of each line, if they exist. Then graph each line.

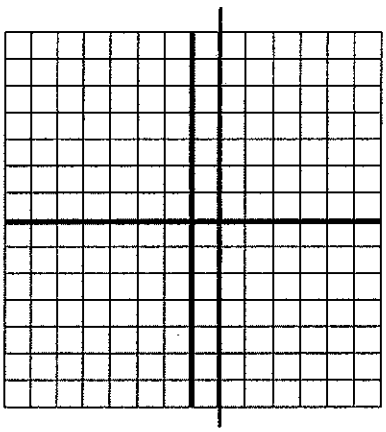
a) $y = -5$



$m = 0$

$b = -5$

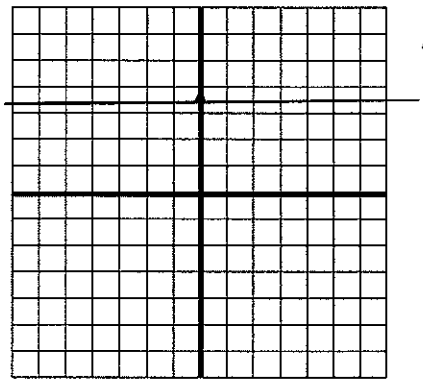
b) $x = 1$



m = undefined

no y-intercept

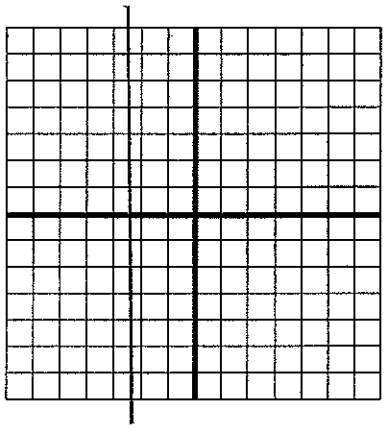
c) $y = \frac{7}{2}$



$m = 0$

$b = 3.5$

d) $x = -2.5$



m = undefined

no y-intercept.

Answers

1.

	Equation	Slope	*y*-Intercept
a)	$y = 4x + 1$	4	1
b)	$y = \frac{x}{2} - 3$	$\frac{1}{2}$	−3
c)	$y = -2x$	−2	0
d)	$y = -x + 2$	−1	2

2. **a)** −3; 6

b) $\frac{1}{2}$; 2

c) $-\frac{2}{5}$; −2

d) $\frac{3}{5}$; 3

3. **a)** $y = -3x + 6$

b) $y = \frac{1}{2}x + 2$

c) $y = -\frac{2}{5}x - 2$

d) $y = \frac{3}{5}x + 3$

4. a) $y = x - 3$

b) $y = -6x + 6$

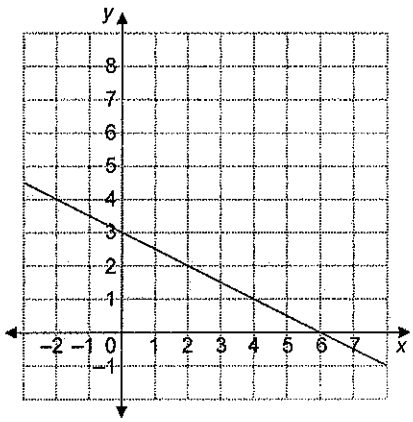
5. a) $y = -2x + 1$

b) $y = \frac{2}{3}x - 4$

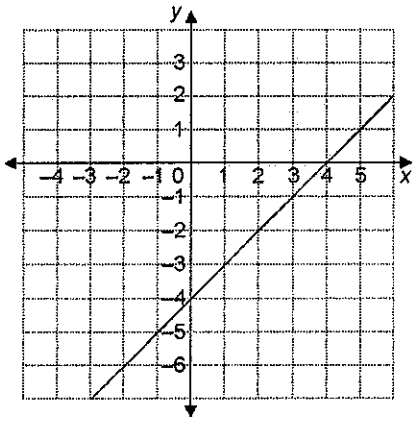
c) $y = 5x$

d) $y = -\frac{3}{2}x + 3$

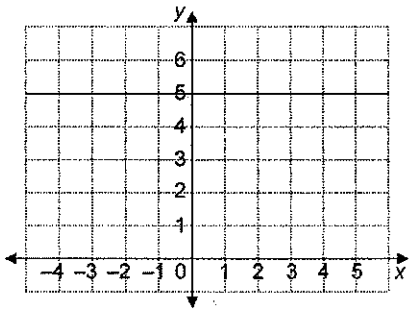
6. a) slope $-\frac{1}{2}$; y-intercept 3



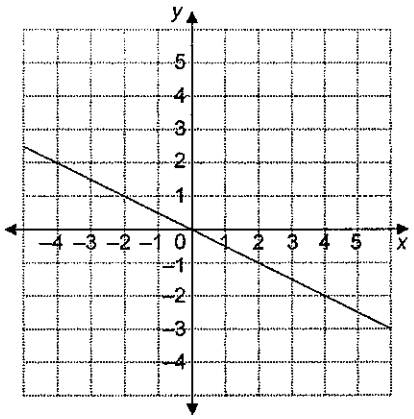
b) slope 1; y-intercept −4



c) slope 0; y-intercept 5



d) slope $-\frac{1}{2}$; y-intercept 0



7.

a) The slope is 0, and the y-intercept is −5.

b) The slope is undefined, and there is no y-intercept.

c) The slope is 0, and the y-intercept is $\frac{7}{2}$.

d) The slope is undefined, and there is no y-intercept.