Mathematics 9
Finding Equations of Lines

Date:

1.
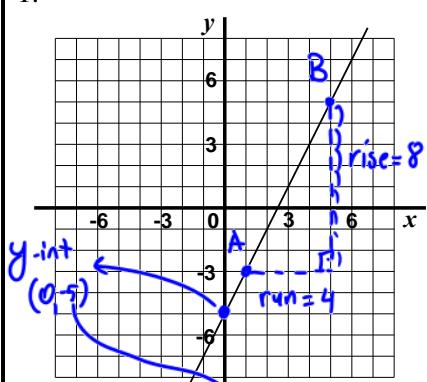
$m = \frac{8}{4} = 2$ | $b = -5$

Equation of line:
$y = mx + b \Rightarrow y = 2x - 5$

2.

$m = 3$ | $b = 6$
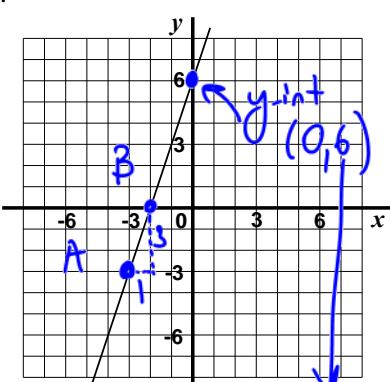
Equation of line:
$y = 3x + 6$

3.
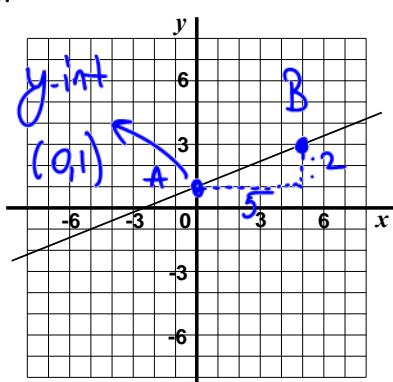
$m = {}^+2/5$ | $b = 1$

Equation of line:
$y = \frac{2}{5}x + 1$

4.
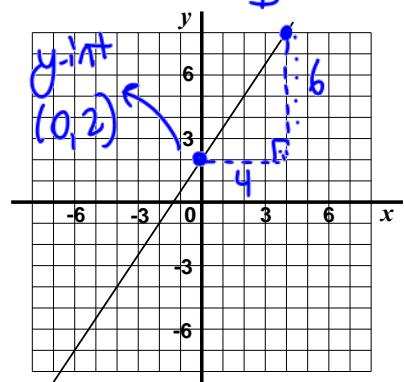
$m = \frac{6}{4} = 3/2$ | $b = 2$

Equation of line:
$y = \frac{3}{2}x + 2$

5.
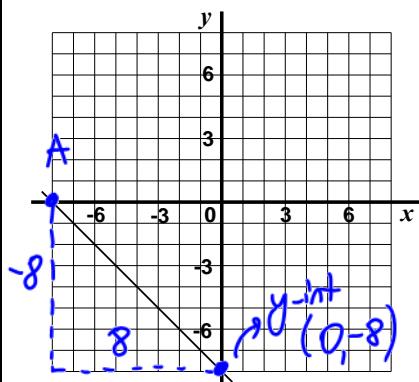
$m = \frac{-8}{8} = -1$ | $b = -8$

Equation of line:
$y = -x - 8$

6.
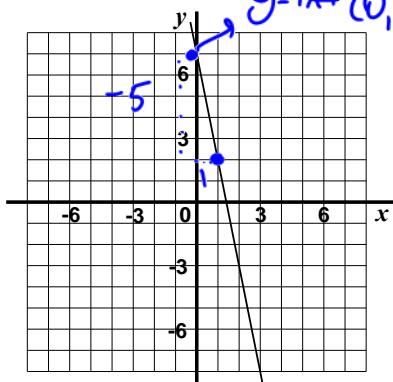
$m = -1/5$ | $b = 7$

Equation of line:
$y = \frac{-1}{5}x + 7$

7.
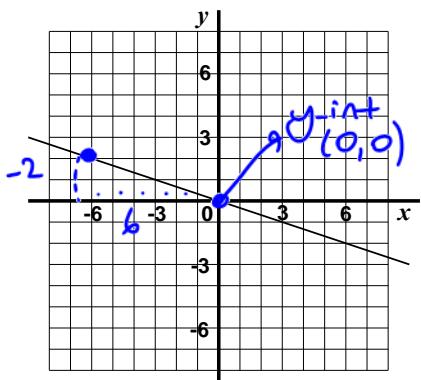
$m = \frac{-2}{6} = \frac{-1}{3}$ | $b = 0$

Equation of line:
$y = \frac{-1}{3}x$
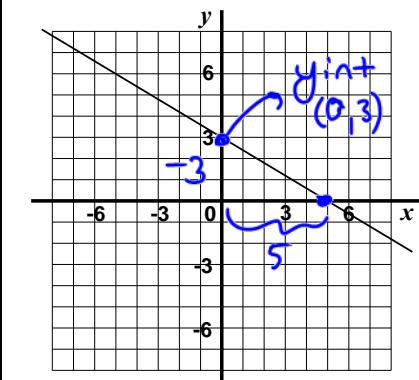
8.

$m = \frac{-3}{5}$ | $b = 3$

Equation of line:
$y = \frac{-3}{5}x + 3$
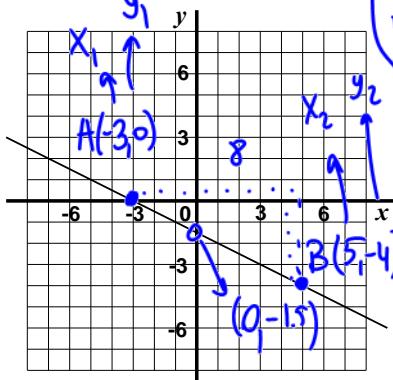
9.

$m = -1/2$ | $b = -3/2 \text{ or } -1.5$

Equation of line:
$y = \frac{-1}{2}x - 1.5$

$m = \frac{y_2 - y_1}{x_2 - x_1}$

$= \frac{-4 - 0}{5 - (-3)}$

$= \frac{-4}{5 + 3}$

$= \frac{-4}{8}$

$= -1/2$

$y = mx + b$

$x = 3$

1. $y = 0x + 5 \Rightarrow \boxed{y=5}$

$\rightarrow (0,5)$

$\boxed{y=5}$

2.

X	Y
A	3	6
B	3	3
C	3	-3

$A(3,6)$
$B(3,3)$
$C(3,-3)$

$\cdot z(3, -10,000)$

3. $y = mx + b = 0x - 4 = 0 - 4 = -4$

$\boxed{y = -4}$

slope $= 0$

$\rightarrow y\text{-int } (0,-4)$

4.

$A(-4,7)$
$B(-4,5)$
$C(-4,-7)$

X is always -4

$\boxed{X = -4}$

5.

$m = 0$

$y\text{-int } (0,-8)$

-8

$\boxed{y = -8}$

6.

$A(1,7)$
$B(1,3)$
$C(1,-5)$

$\boxed{X = 1}$

$z(1, 10000)$

7. $\boxed{y = 0.5}$

no matter what point you pick the "y" coordinate is always 0.5, therefore, $\boxed{y = 0.5}$

8. $\boxed{y = 0}$

9.
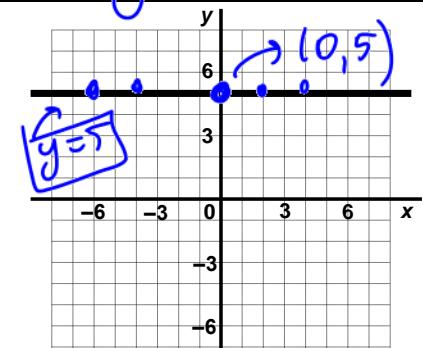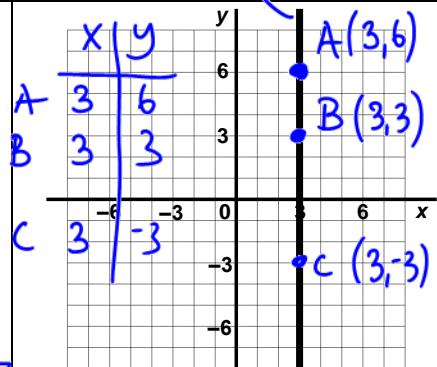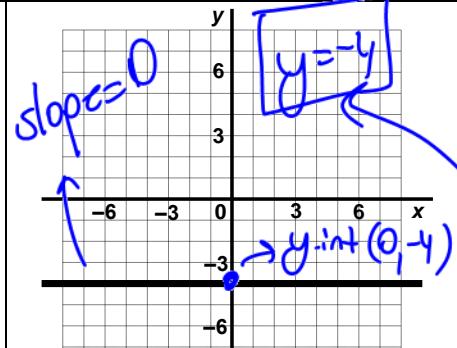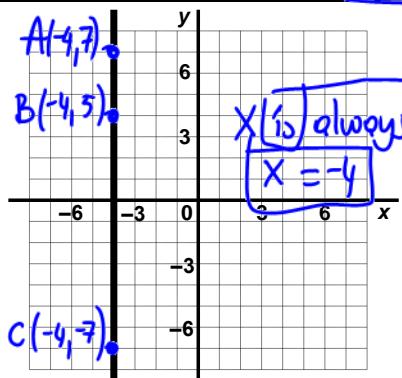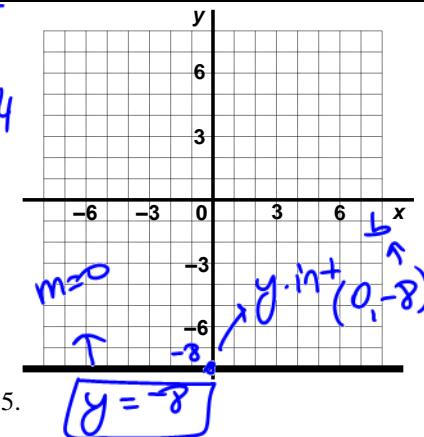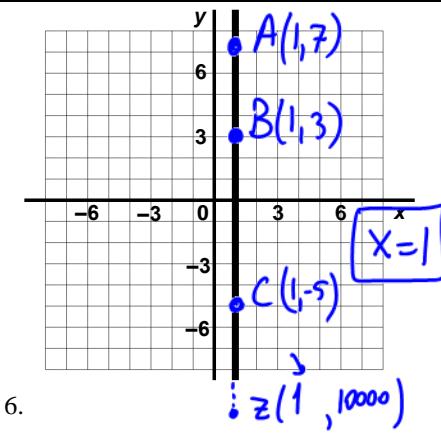
$A(-7,7)$
$B(-7,3)$
$C(-7,6)$

no matter what point you pick, the "x" coordinate is always "-7"

$\boxed{X = -7}$

10. $\boxed{X = 0}$

11. $y = \boxed{-2.5}$

or

$y = -5/2$

12. $\rightarrow X = 6.5$

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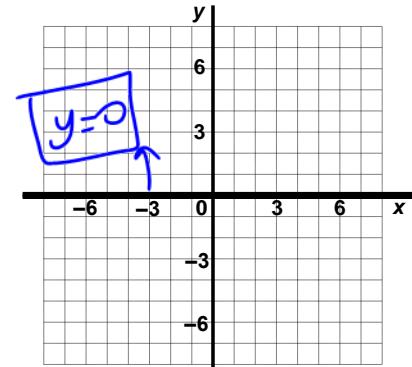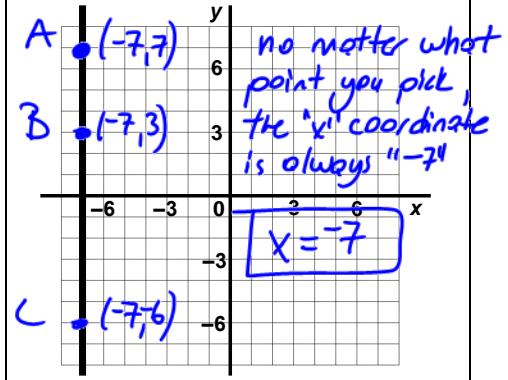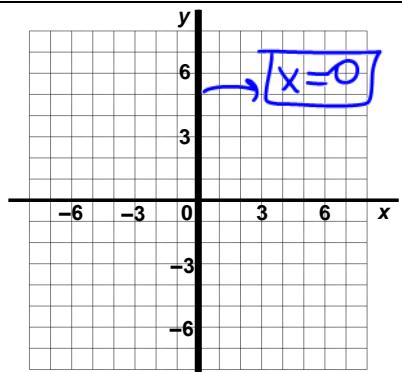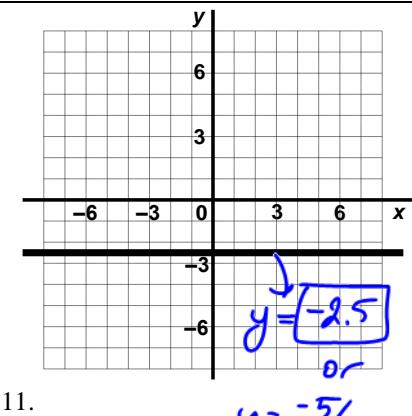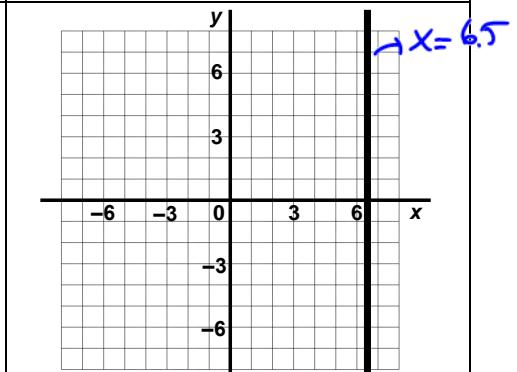
Naming Equations of Lines

Place the letter of the correctly matching line in the box beside each equation.

1.

i		$y = -x + 2$
ii		$y = \frac{1}{2}x + 2$
iii		$y = -2x + 2$
iv		$y = 2x + 2$
v	I	$y = 2$
vi		$y = 3x + 2$
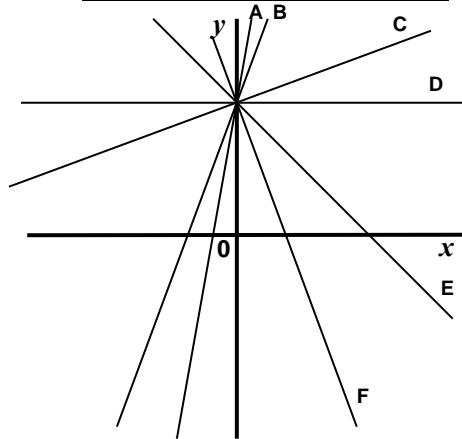
2.

i		$y = x - 4$
ii		$y = -\frac{1}{2}x - 4$
iii		$y = x + 4$
iv		$y = -\frac{1}{2}x + 4$
v		$y = x$
vi		$y = -\frac{1}{2}x$
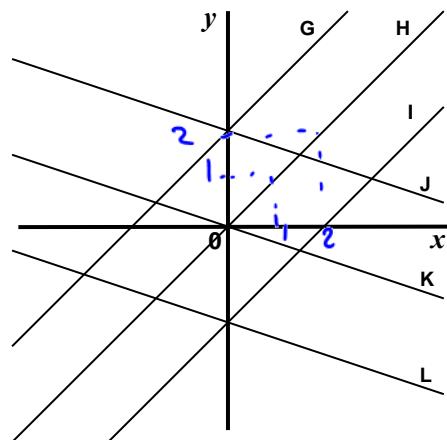
3.

i		$y = \frac{2}{3}x + \frac{3}{2}$
ii		$y = -\frac{2}{3}x - 1$
iii		$y = \frac{2}{3}x$
iv		$x = -3$
v		$y = -\frac{3}{2}x - 1$
vi		$y = 3$
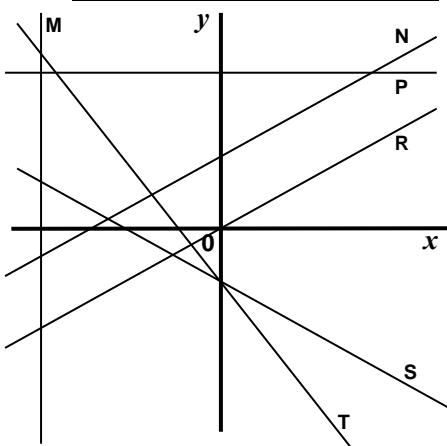
4.

| i		$y = -2$
ii		$y = -x$
iii		$y = 2$
iv		$x = 2$
v		$y = 4$
vi		$y = x$

In each question, graph the line described then determine its equation and write it in the space provided.
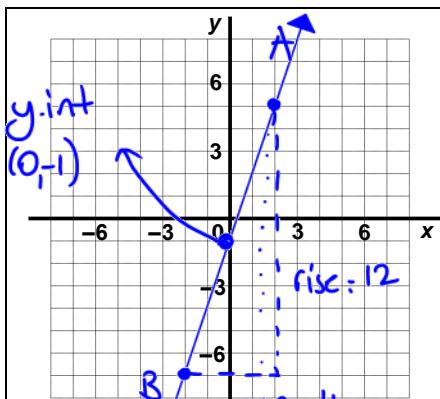
1. The line through the points A(2,5) and (–2,–7). B

$m = \frac{12}{4} = 3$ $\boxed{y = 3x - 1}$
$b = -1$

y.int (0,–1)   rise: 12   run = 4
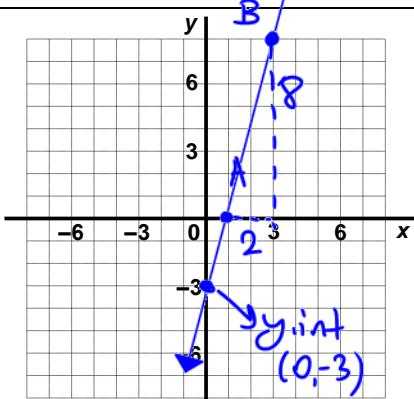
2. The line through the points A(1,0) and (3,8).

$m = \frac{8}{2} = 4$ $\boxed{y = 4x - 3}$
$b = -3$

y.int (0,–3)   8   2
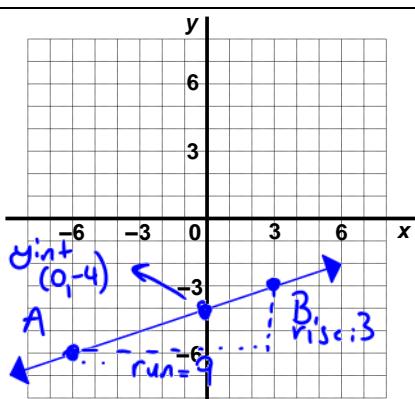
3. The line through the points (–6,–6) and (3,–3).

$m = \frac{3}{9} = \frac{1}{3}$ $y = \frac{1}{3}x - 4$
$b = -4$

y.int (0,–4) A B rise: 3   run = 9
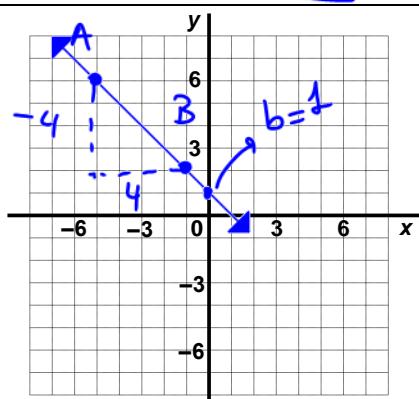
4. The line through the points A(–5,6) and (–1,2).

$m = \frac{-4}{4} = -1$ $\boxed{y = -x + 1}$
$b = 1$

–4 B $b = 1$ 4
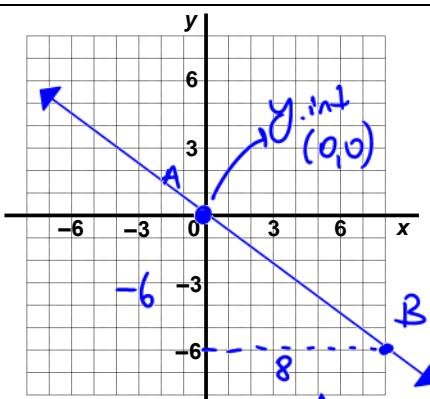
5. The line through the origin and the point (8,–6).

$m = \frac{-6}{8} = \frac{-3}{4}$
$b = 0$ $y = \frac{-3}{4}x$

y.int (0,0)   –6   8 B A
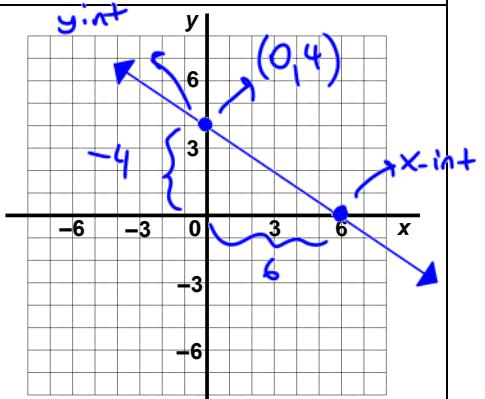
6. The line with x-intercept 6 and y-intercept 4.

$m = \frac{-4}{6} = \frac{-2}{3}$ $\boxed{y = \frac{-2}{3}x + 4}$
$b = 4$

y.int (0,4)   –4   x-int   6
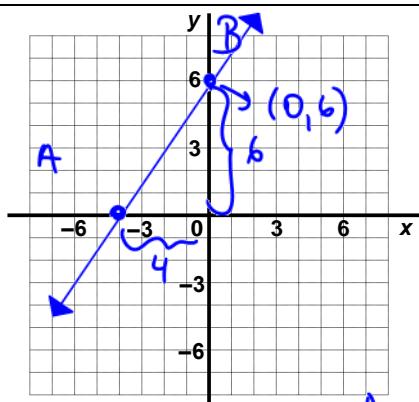
7. The line with x-intercept –4 and y-intercept 6. B

$m = \frac{6}{4} = \frac{3}{2}$ $y = \frac{3}{2}x + 6$
$b = 6$

(0,6)   6 A 4 A
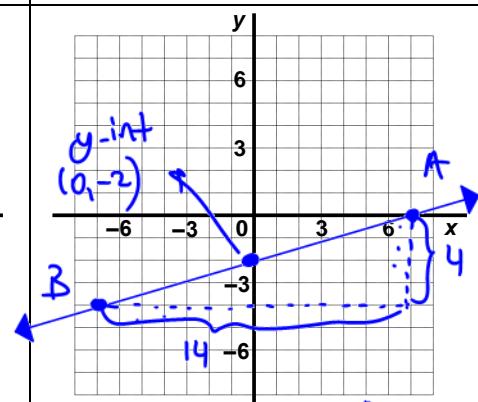
8. The line with x-intercept 7 and through the point (–7,–4). B

$m = \frac{4}{14} = \frac{2}{2}$ $\boxed{y = \frac{2}{7}x - 2}$
$b = -2$

y-int (0,–2) A 4 B 14
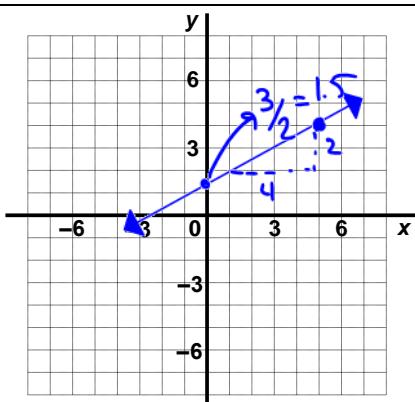
9. The line with y-intercept $\frac{3}{2}$ and through (5,4).

$m = \frac{1}{2}$ $y = \frac{1}{2}x + \frac{3}{2}$
$b = \frac{3}{2}$

$\frac{3}{2} = 1.5$ 2   4

Mathematics 9
Plot & Name the Line

Date:

(handwritten) b=4

(handwritten on graph 10) y is always -5 ; -5
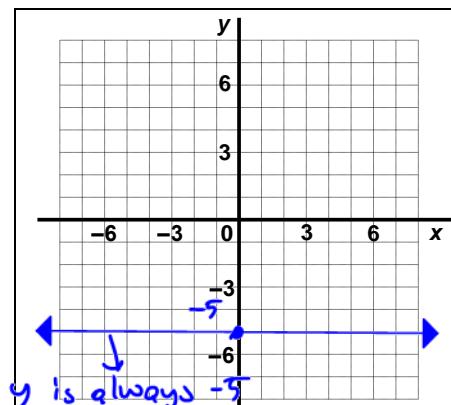
10. The line with *y*-intercept –5 and parallel to the *x*-axis.

(handwritten) $y = -5$
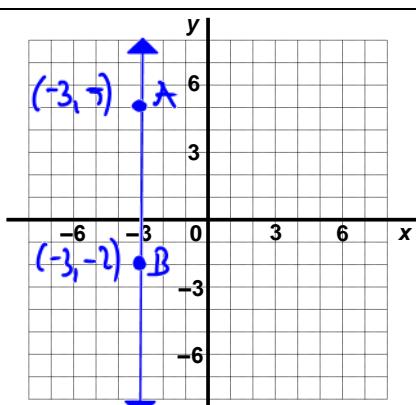
11. The line through the points (–3,5) and (–3,–2).

(handwritten) (-3,5) ·A ; (-3,-2) ·B ; x is always -3 ; x = -3
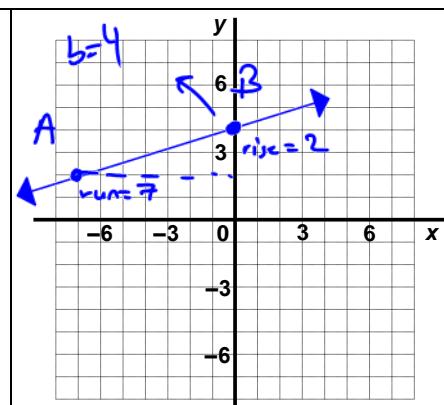
12. The line passing through the point (–7,2) with slope $\frac{2}{7}$.

*(handwritten) slope $= \frac{rise}{run} = \frac{2}{7} \Rightarrow y = \frac{2}{7}x + 4$; rise=2 ; run=7*

(handwritten) b=8 ; B ; A ; rise ; run
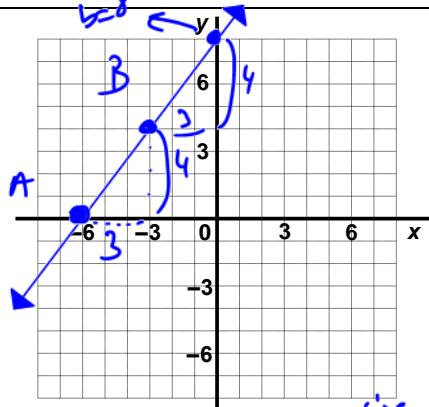
13. The line with slope $\frac{4}{3}$ and *x*-intercept –6.

(handwritten) Point ; b=8 ; m=4/3 ; $y = \frac{4}{3}x + 8$

(handwritten) b=21
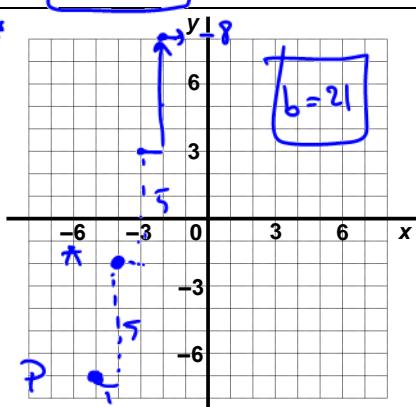
14. The line with slope $\frac{1}{5}$ passing through the point (–5,–7).

(handwritten) P ; A ; $m = \frac{1}{5}$; $y = \frac{1}{5}x +$

(handwritten) b=7 ; P
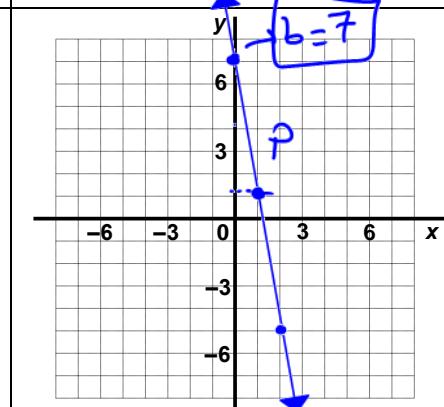
15. The line with slope –6 passing through the point (1,1).

(handwritten) $m = \frac{-6}{1}$; b=7 ; $y = -6x - 7$

Answers:

1. $y = 3x - 1$

2. $y = 4x - 4$

3. $y = \frac{1}{3}x - 4$

4. $y = -x + 1$

5. $y = -\frac{3}{4}x$

6. $y = -\frac{2}{3}x + 4$

7. $y = \frac{3}{2}x + 6$

8. $y = \frac{2}{7}x - 2$

9. $y = \frac{1}{2}x + \frac{3}{2}$

10. $y = -5$

11. $x = -3$

12. $y = \frac{2}{7}x + 4$

13. $y = \frac{4}{3}x + 8$

14. $y = \frac{1}{5}x - 6$

15. $y = -6x + 7$