

Notes 4-1

Algebra 1

11-26-13

Slope-Intercept Form

you need:

slope (m)

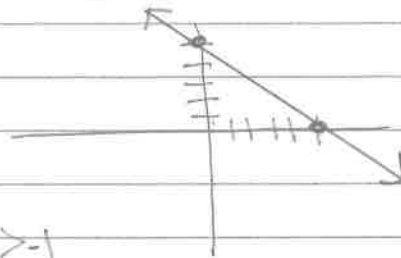
y-intercept (b)

$$b = 5 \quad (0, 5)$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{(0, 5) - (1, 4)}{1 - 0} = -1$$

$$m = -1 = -1$$

$$y = mx + b$$



$$y = -1x + 5$$

— Graphing worksheets —

Graph:

$5x + 4y = 8$ → this is in standard form
↳ can't graph it like this
w/o a table

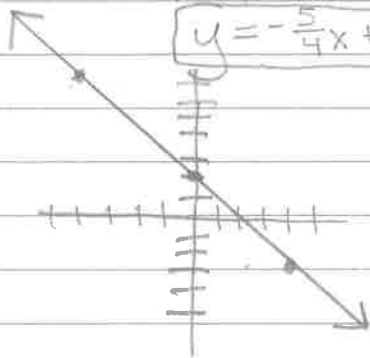
→ The y is not alone

* Get y by itself

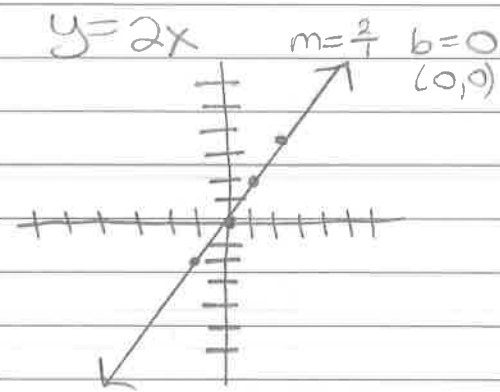
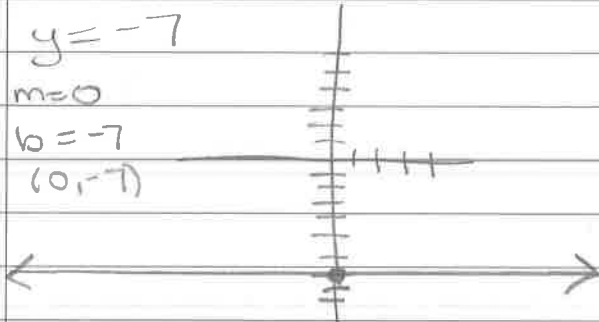
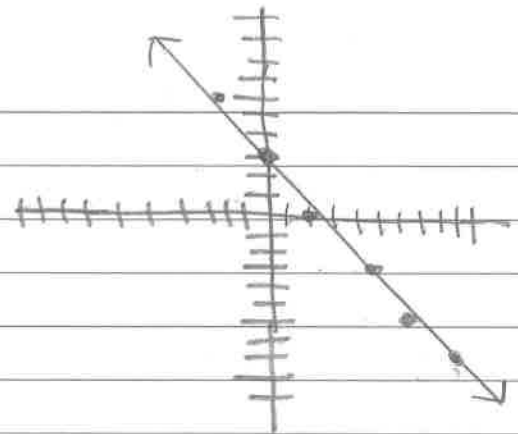
$$\begin{array}{r} 5x + 4y = 8 \\ -5x \quad -5x \rightarrow y \text{ stays put} \\ \hline 4y = \frac{-5x + 8}{4} \end{array}$$

$$y = -\frac{5}{4}x + 2$$

$$m = -\frac{5}{4} \quad b = 2 \quad (0, 2)$$



$$\begin{array}{r}
 3x + 2y = 6 \\
 \underline{-3x} \qquad \underline{-3x} \\
 2y = -3x + 6 \\
 \underline{2y} \qquad \underline{2} \qquad \underline{2} \\
 y = -\frac{3}{2}x + 3 \\
 m = -\frac{3}{2} \quad b = 3 \\
 \qquad \qquad \qquad (0, 3)
 \end{array}$$

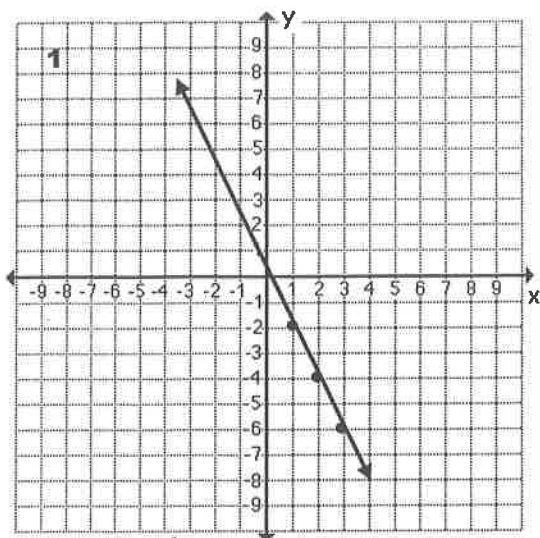


Video on Slope:

- ① get y alone
- ② begin on b
- ③ move with m
- ④ draw the line

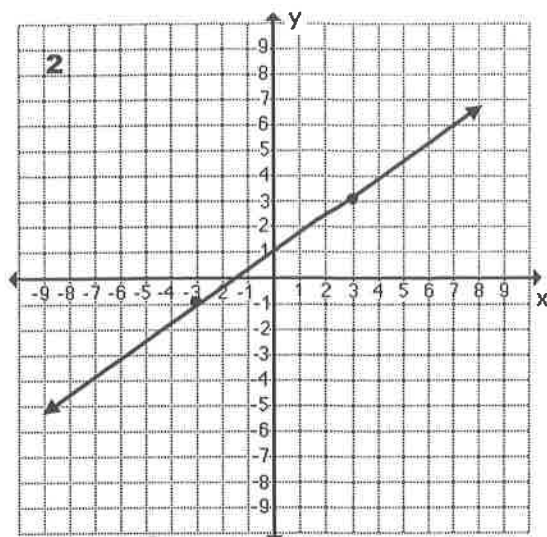
word problems (look at examples)

HW: p 220 # 17-37 odd



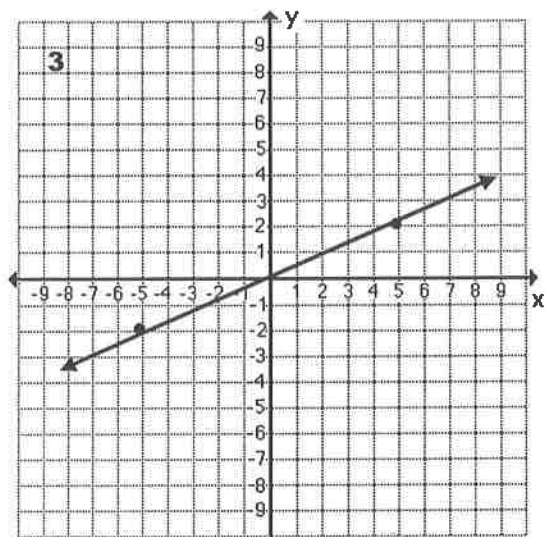
$m = -\frac{2}{1}$ $b = \frac{1}{2}$

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



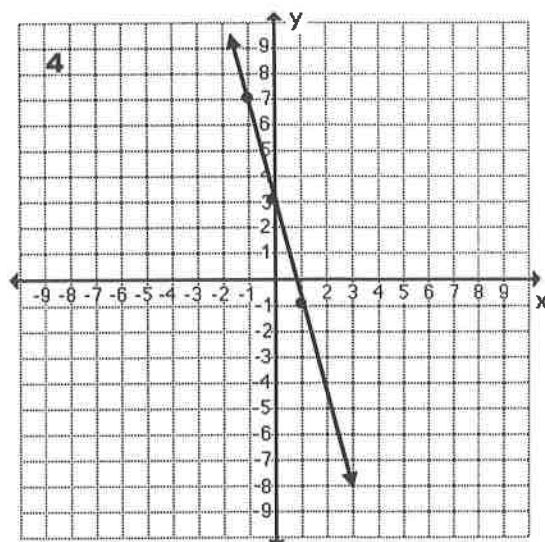
$m = \frac{2}{3}$ $b = 1$

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



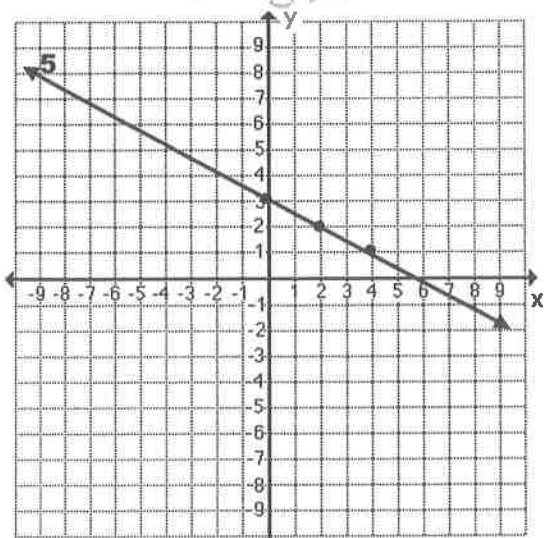
$m = \frac{2}{5}$ $b = 0$

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



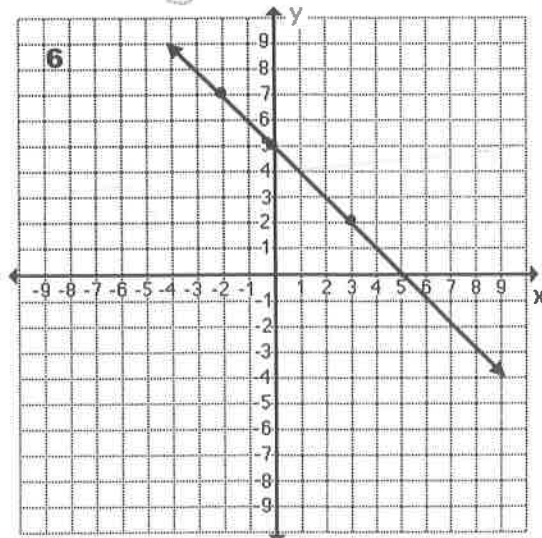
$m = -\frac{4}{1}$ $b = 3$

$y = -4x + 3$



$m = -\frac{1}{2}$ $b = 3$

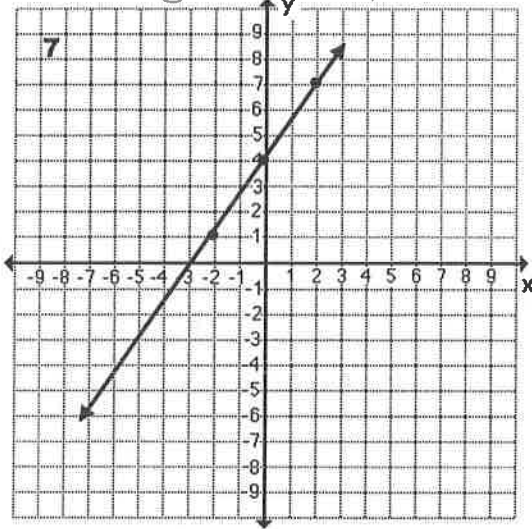
$y = -\frac{1}{2}x + 3$



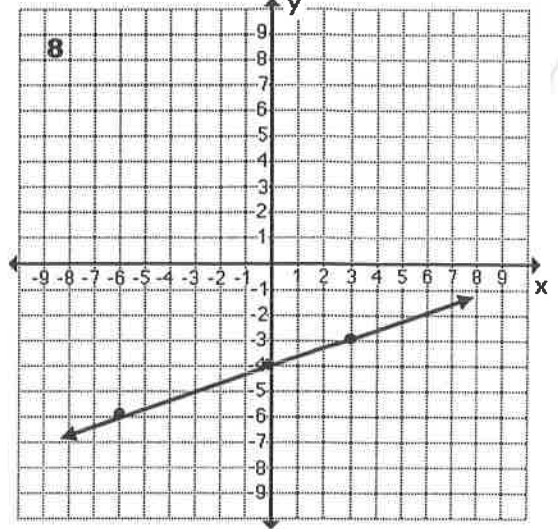
$m = 1$ $b = 5$

$y = x + 5$

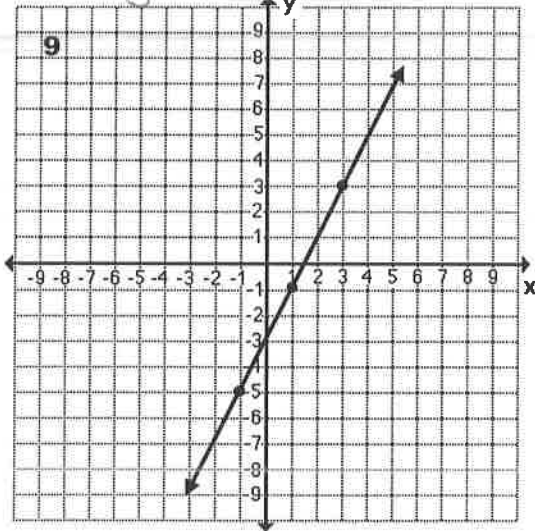
$$m = \frac{3}{2} \quad b = 4 \quad (0, 4)$$
$$y = \frac{3}{2}x + 4$$



$$m = \frac{1}{3} \quad b = -4 \quad (0, -4)$$
$$y = \frac{1}{3}x - 4$$



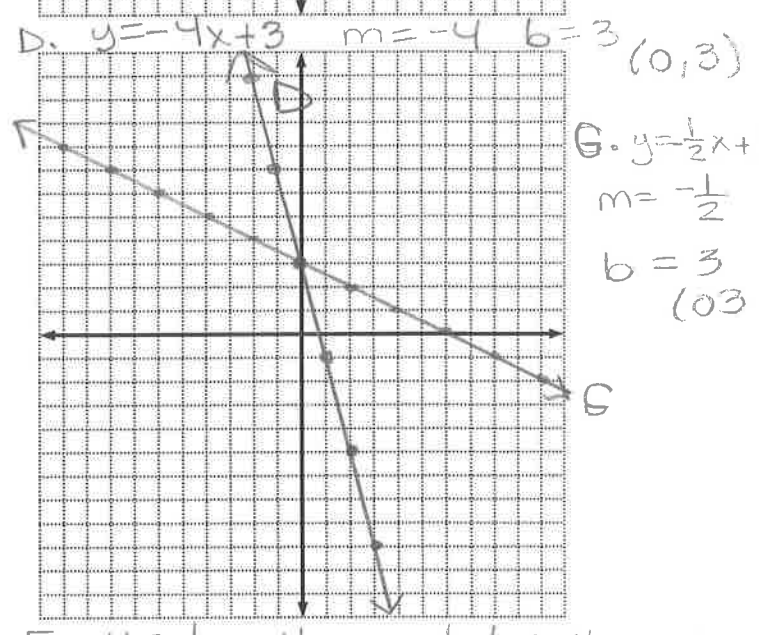
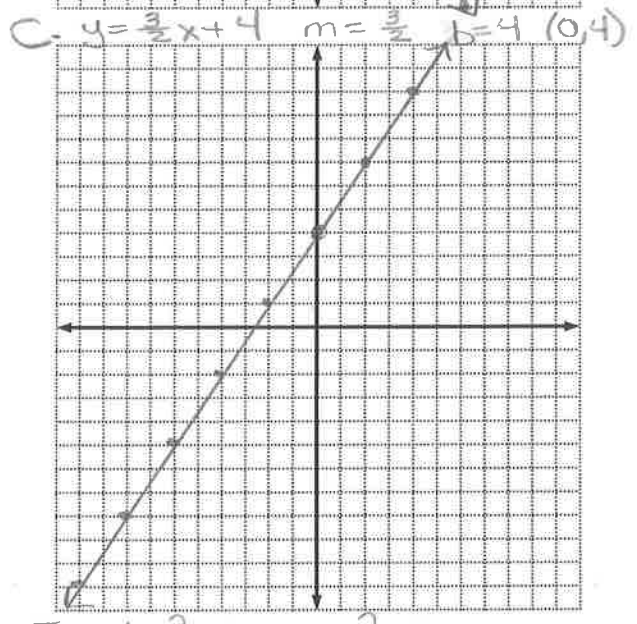
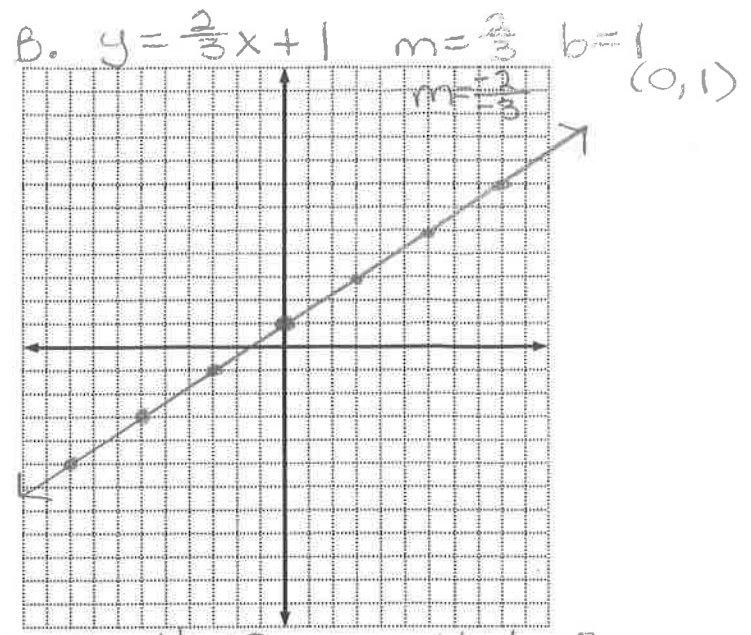
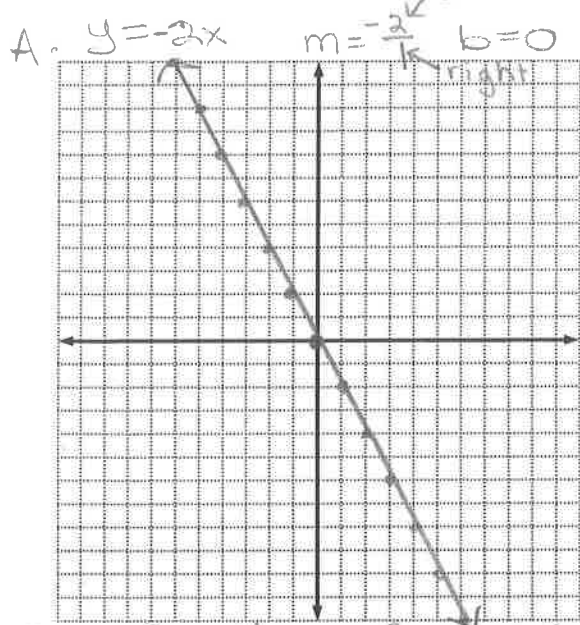
$$m = \frac{2}{1} \quad b = -3 \quad (0, -3)$$
$$y = 2x - 3$$



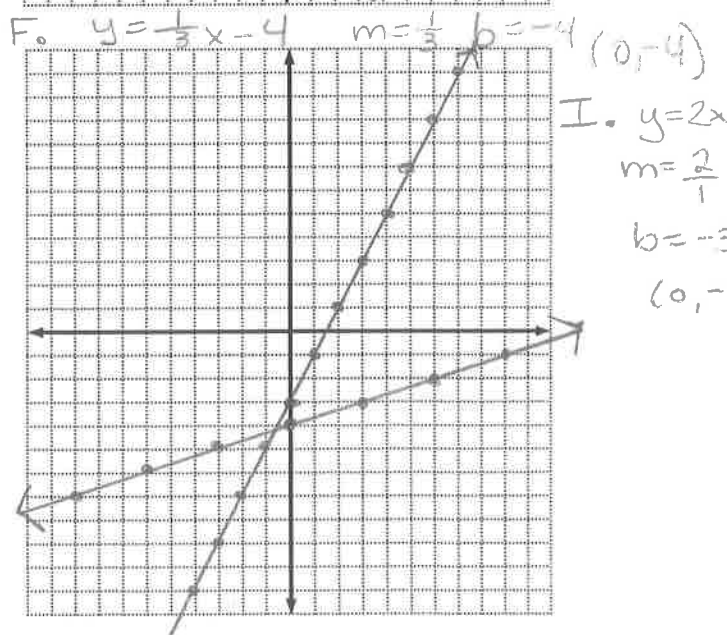
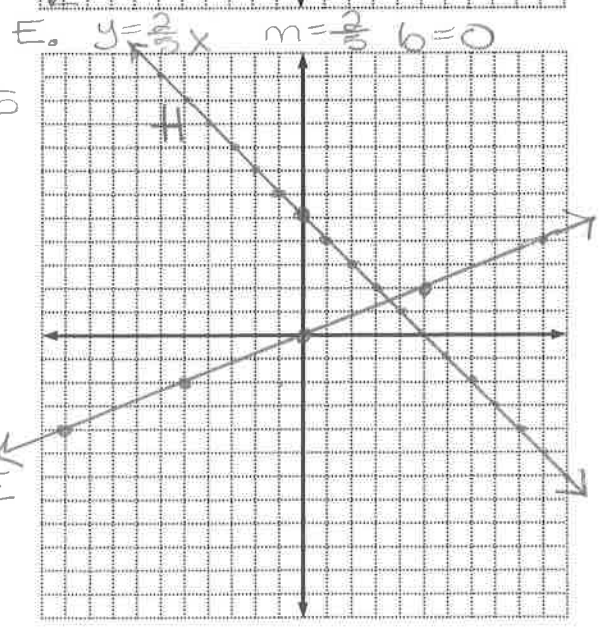
A-6 $y = -2x$	B-7 $y = \frac{2}{3}x + 1$	C-9 $y = \frac{3}{2}x + 4$
D-8 $y = \frac{-4x}{1} + 3$	E-5 $y = \frac{2}{5}x + 0$	F-4 $y = \frac{1}{3}x - 4$
G-3 $y = -\frac{1}{2}x + 3$	H-1 $y = \frac{-x}{1} + 5$	I-2 $y = \frac{2x}{1} - 3$

* get y-alone!

<p>1</p> $b=5 \quad m=-\frac{1}{1}$ $\begin{array}{r} x + y = 5 \\ -x \quad -x \\ \hline y = -x + 5 \end{array}$	<p>2</p> $b=-3 \quad m=\frac{2}{1}$ $\begin{array}{r} 2x - y = 3 \\ -2x \quad -2x \\ \hline -y = -2x + 3 \\ \frac{-y}{-1} = \frac{-2x + 3}{-1} \\ y = 2x - 3 \end{array}$	<p>3</p> $b=3 \quad m=-\frac{1}{2}$ $\begin{array}{r} x + 2y = 6 \\ -x \quad -x \\ \hline 2y = -x + 6 \\ \frac{2y}{2} = \frac{-x + 6}{2} \\ y = -\frac{1}{2}x + 3 \end{array}$
<p>4</p> $b=-4 \quad m=\frac{1}{3}$ $\begin{array}{r} x - 3y = 12 \\ -x \quad -x \\ \hline -3y = -x + 12 \\ \frac{-3y}{-3} = \frac{-x + 12}{-3} \\ y = \frac{1}{3}x - 4 \end{array}$	<p>5</p> $b=0 \quad m=\frac{2}{5}$ $\begin{array}{r} 2x - 5y = 0 \\ -2x \quad -2x \\ \hline -5y = -2x \\ \frac{-5y}{-5} = \frac{-2x}{-5} \\ y = \frac{2}{5}x \end{array}$	<p>6</p> $b=0 \quad m=-\frac{2}{1}$ $\begin{array}{r} 2x + y = 0 \\ -2x \quad -2x \\ \hline y = -2x \end{array}$
<p>7</p> $b=1 \quad m=\frac{2}{3}$ $\begin{array}{r} 2x - 3y = -3 \\ -2x \quad -2x \\ \hline -3y = -2x - 3 \\ \frac{-3y}{-3} = \frac{-2x - 3}{-3} \\ y = \frac{2}{3}x + 1 \end{array}$	<p>8</p> $b=3 \quad m=-\frac{4}{1}$ $\begin{array}{r} 4x + y = 3 \\ -4x \quad -4x \\ \hline y = -4x + 3 \end{array}$	<p>9</p> $b=4 \quad m=\frac{3}{2}$ $\begin{array}{r} 3x - 2y = -8 \\ -3x \quad -3x \\ \hline -2y = -3x - 8 \\ \frac{-2y}{-2} = \frac{-3x - 8}{-2} \\ y = \frac{3}{2}x + 4 \end{array}$



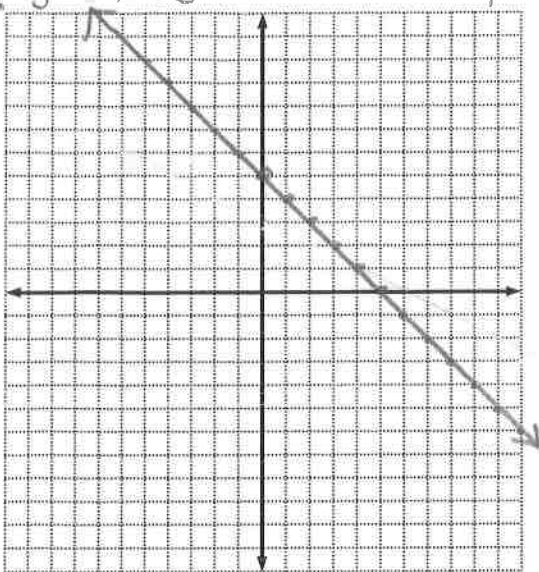
E. $y = \frac{1}{2}x + 3$
 $m = \frac{1}{2}$
 $b = 3$ (0,3)



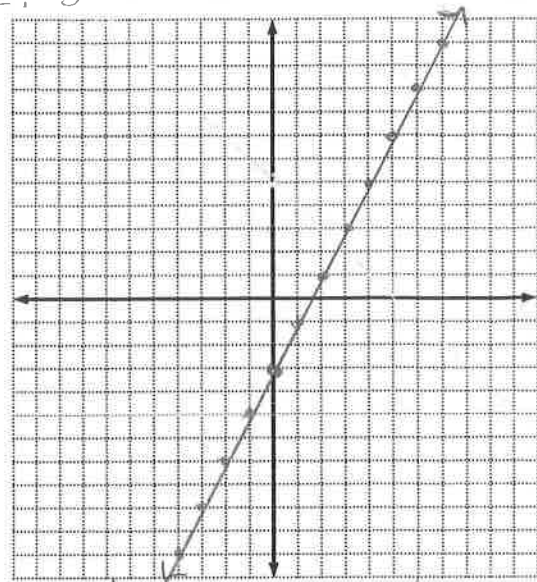
I. $y = 2x - 3$
 $m = \frac{2}{1}$
 $b = -3$ (0,-3)

H. $y = x + 5$
 $m = \frac{1}{1}$
 $b = 5$ (0,5)

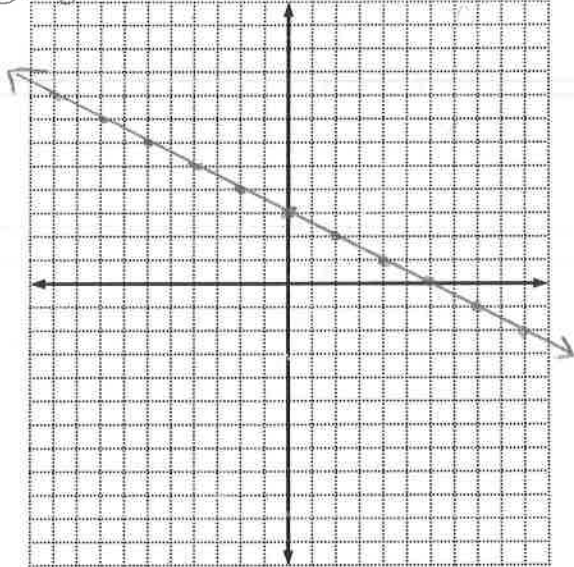
1. $y = -x + 5$ $b = 5$ $m = -\frac{1}{1}$



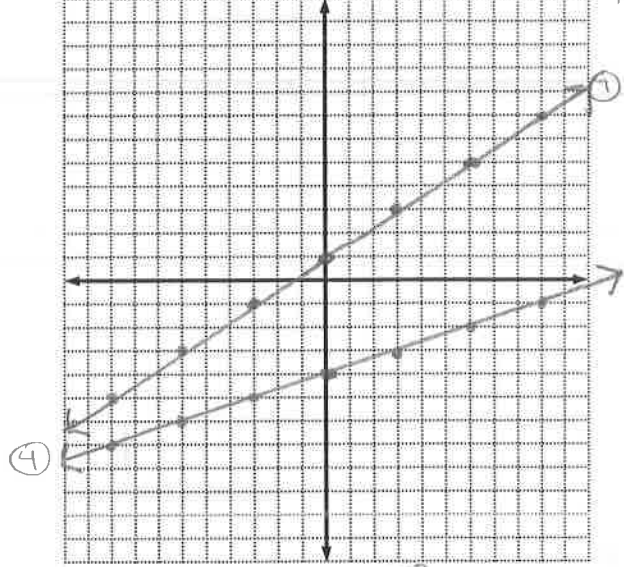
2. $y = 2x - 3$ $b = -3$ $m = \frac{2}{1}$



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

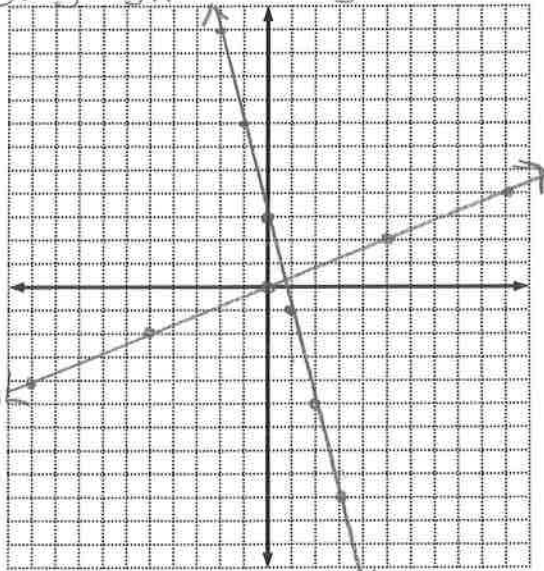


4. $y = \frac{1}{3}x - 4$ $b = -4$ $m = \frac{1}{3}$

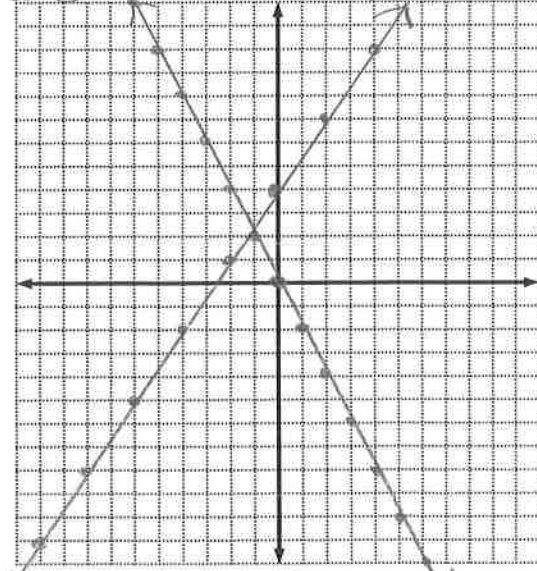


7. $y = \frac{2}{3}x + 1$
 $b = 1$
 $m = \frac{2}{3}$

5. $y = \frac{2}{3}x$ $b = 0$ $m = \frac{2}{3}$

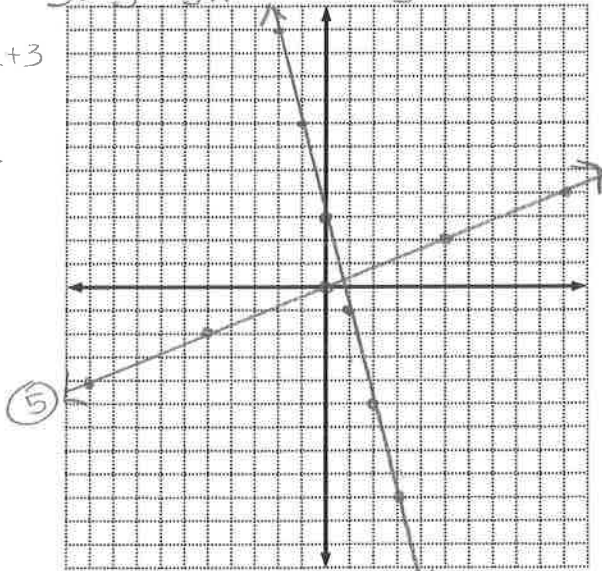


6. $y = -2x$ $b = 0$ $m = -\frac{2}{1}$



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

8. $y = -4x + 3$
 $b = 3$
 $m = -\frac{4}{1}$



⑤

⑧

④

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