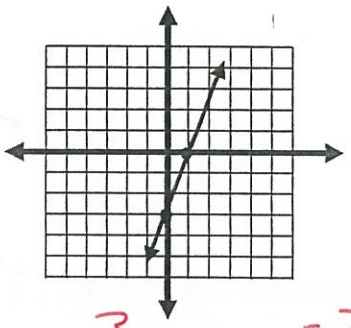
Writing Linear Equations

GIVEN A GRAPH

- ✓ ***Step 1:*** Identify the slope and y-intercept
- ✓ ***Step 2:*** Write the equation in **slope-intercept form:** $y = mx + b$

Some Examples...

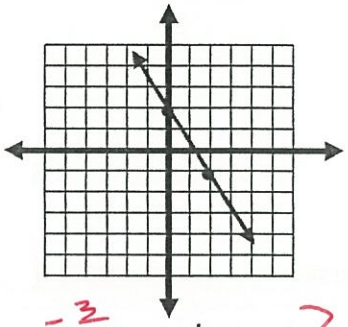
1



m = 3 b = -3

Equation: $y = 3x - 3$

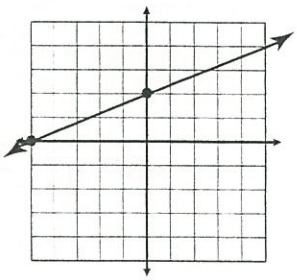
2



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

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

3

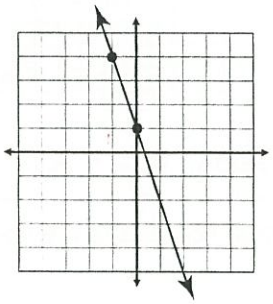


$b = 2$

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

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

4

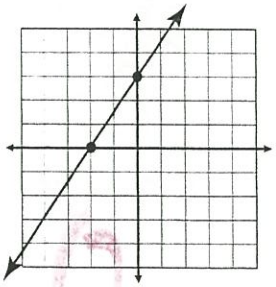


$b = 1$

$m = -3$

Equation: $y = -3x + 1$

5

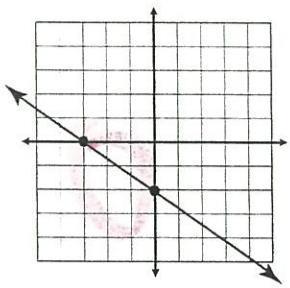


$b = 3$

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

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

6

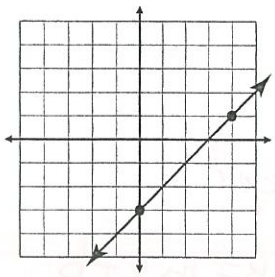


$b = -2$

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

Equation: $y = -\frac{2}{3}x - 2$

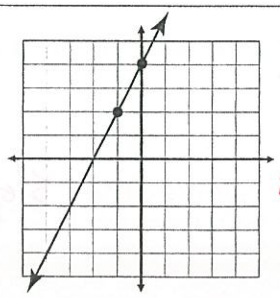
7



$b = -3$
$m = 1$

Equation: $y = x - 3$

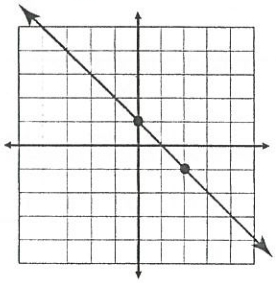
8



$b = 4$
$m = 2$

Equation: $y = 2x + 4$

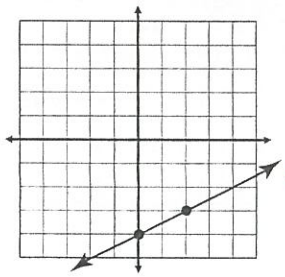
9



$b = 1$
$m = -1$

Equation: $y = -x + 1$

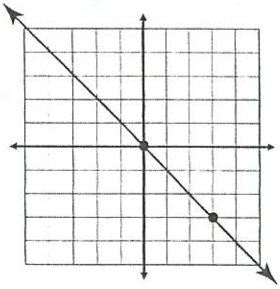
10



$b = -4$
$m = \frac{1}{2}$

Equation: $y = \frac{1}{2}x - 4$

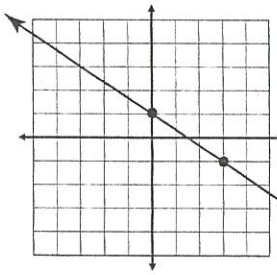
11



$b = 0$
$m = -1$

Equation: $y = -x$

12

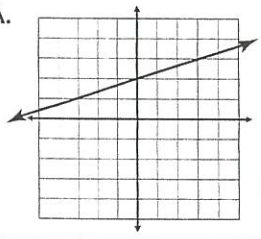


$b = 1$
$m = -\frac{2}{3}$

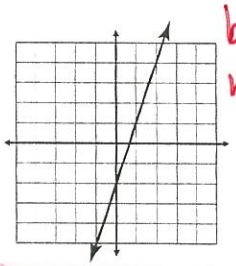
Equation: $y = -\frac{2}{3}x + 1$

13 Which graph represents the line $y = \frac{1}{3}x - 2$?

A.

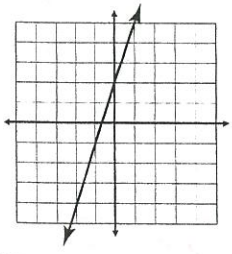


C.

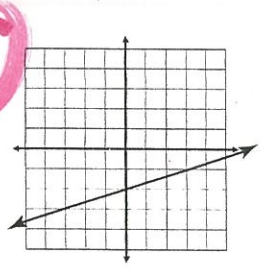


$b = -2$
$m = \frac{1}{3}$

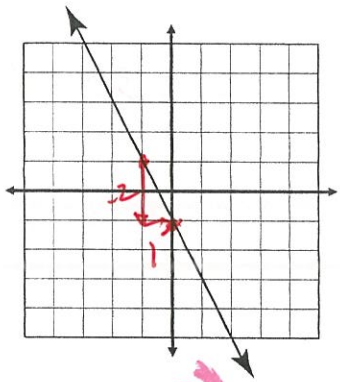
B.



D.



14 Which best represents the equation of the line?



$b = -1$
$m = -2$

A. $y = 2x - 1$

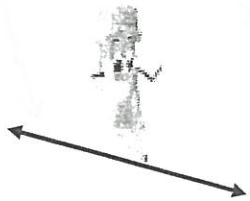
C. $y = -2x - 1$

B. $y = \frac{1}{2}x - 1$

D. $y = -\frac{1}{2}x - 1$

Key

Graphing Linear Equations



By Slope-Intercept

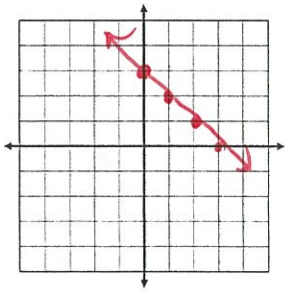
1. Put the equation in **y = mx + b** form.
2. Plot the **y-intercept.**
3. Use the **slope** to create more points.
4. Connect into a line!

Graph each linear equation using the slope-intercept method.

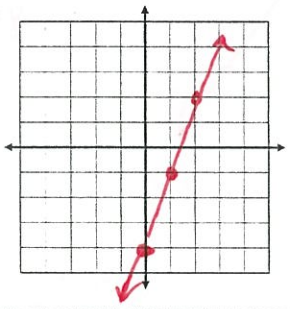
1. $y = -x + 3$

$m = -1$

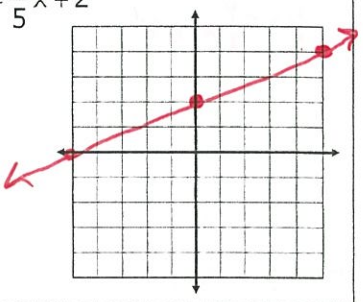
$b = 3$



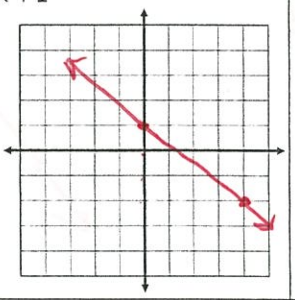
2. $y = 3x - 4$



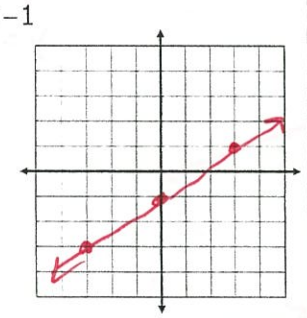
3. $y = \frac{2}{5}x + 2$



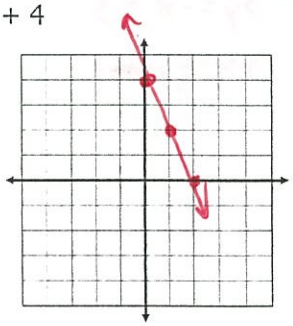
4. $y = -\frac{3}{4}x + 1$



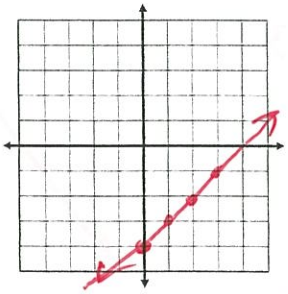
5. $y = \frac{2}{3}x - 1$



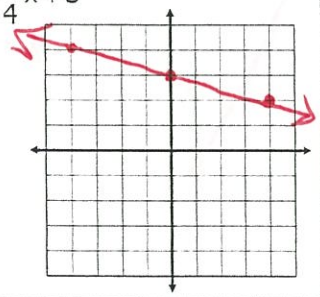
6. $y = -2x + 4$



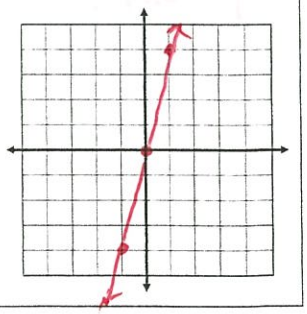
7. $y = x - 4$



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



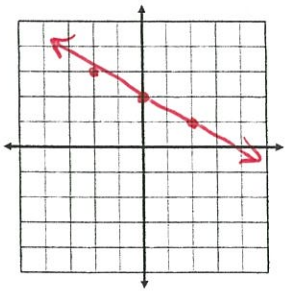
9. $y = 4x$



10. $x + 2y = 4$

$2y = -x + 4$

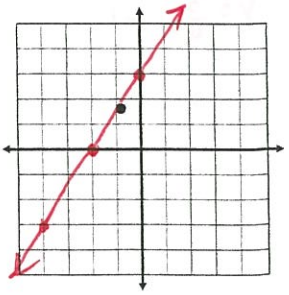
$y = -\frac{1}{2}x + 2$



11. $3x - 2y = -6$

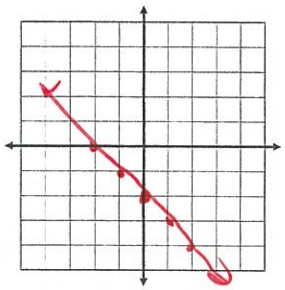
$-2y = -3x - 6$

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



12. $x + y = -2$

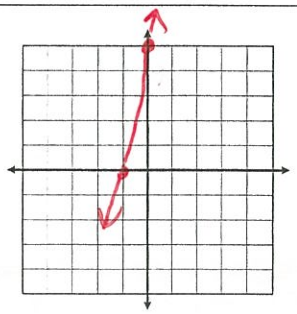
$y = -x - 2$



13. $5x - y = -5$

$-y = -5x - 5$

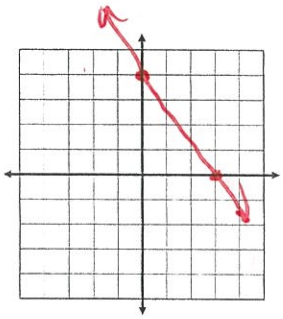
$y = 5x + 5$



14. $4x + 3y = 12$

$3y = -4x + 12$

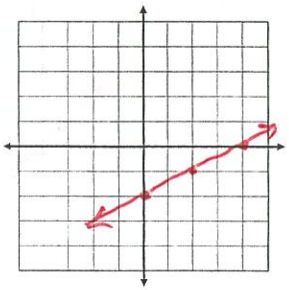
$y = -\frac{4}{3}x + 4$



15. $2x - 4y = 8$

$-4y = -2x + 8$

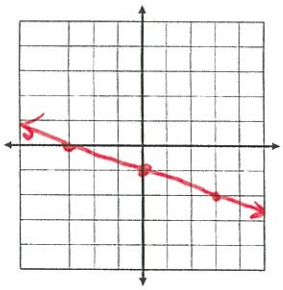
$y = \frac{1}{2}x - 2$



16. $x + 3y = -3$

$3y = -x - 3$

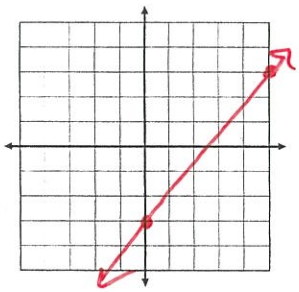
$y = -\frac{1}{3}x - 1$



17. $6x - 5y = 15$

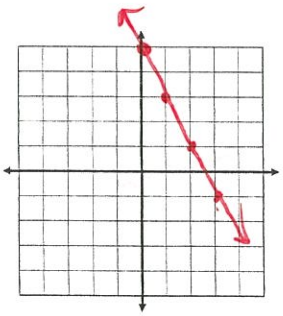
$-5y = -6x + 15$

$y = \frac{6}{5}x - 3$



18. $2x + y = 5$

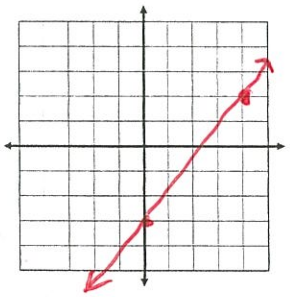
$y = -2x + 5$



19. $10x - 8y = 24$

$-8y = -10x + 24$

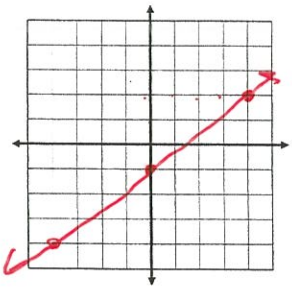
$y = \frac{5}{4}x - 3$



20. $9x - 12y = 12$

$-12y = -9x + 12$

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



21. $3x + y = 0$

$y = -3x$