

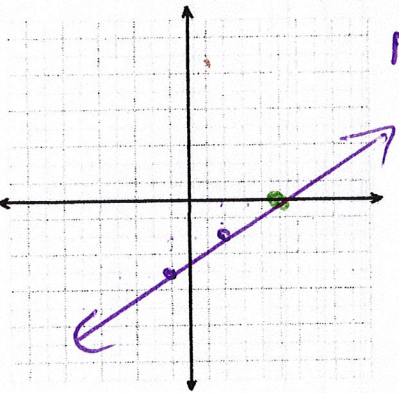
Name Key Algebra Review

Explain how to graph in slope-intercept form:

$y = mx + b$. Start by plotting the y-intercept. Then there apply the slope, m, rise

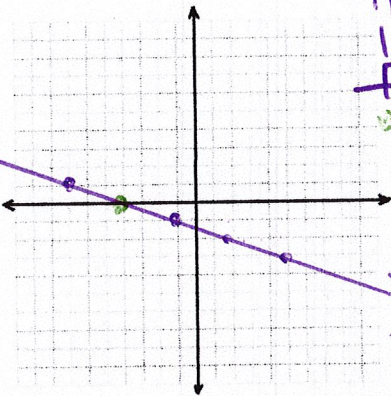
State the slope and y-intercept, then graph

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



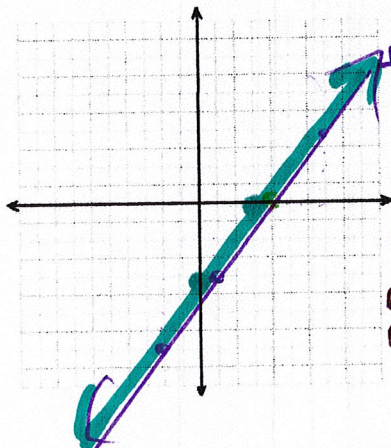
$m = -\frac{3}{2}$
 $b = 5$

2. $y = 3x - 4$



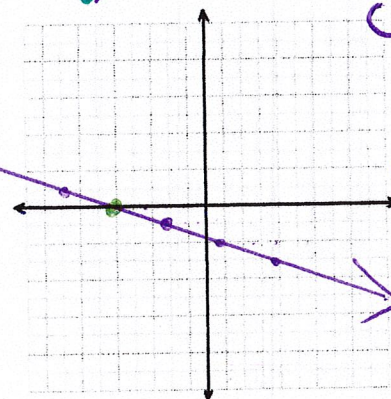
$m = 3$
 $b = -4$

3. $\frac{4}{4}y = -\frac{3}{4}x + \frac{12}{4}$



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

4. $-2x + y = x - 5$



$y = \frac{-2x + 5}{-1} = 2x - 5$
 $y = 3x - 5$
 $m = 3$
 $b = -5$

Solve for y! → run

What is the slope of a horizontal line?

4. $y = 4$ is a horizontal line with a slope

5. $x = -16$ is a vertical line with a slope

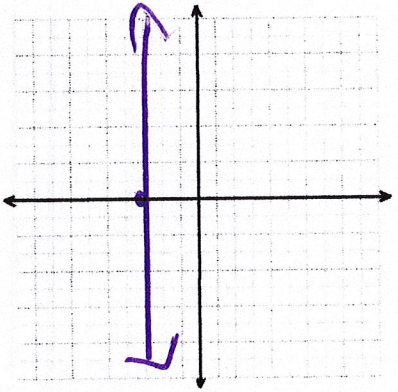
What is the slope of a vertical line?

4. $y = 4$ is a horizontal line with a slope of 0

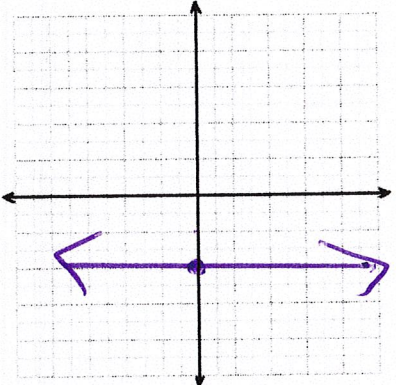
5. $x = -16$ is a vertical line with a slope undefined

Hay Vuxi!

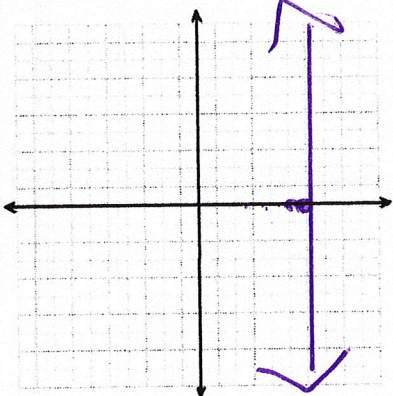
6. $y = -3$



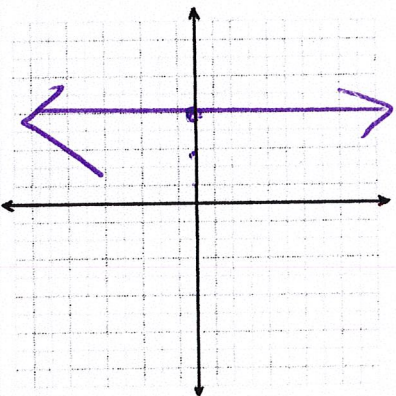
7. $x = 4$



8. $y = 6$



9. $x = -5$



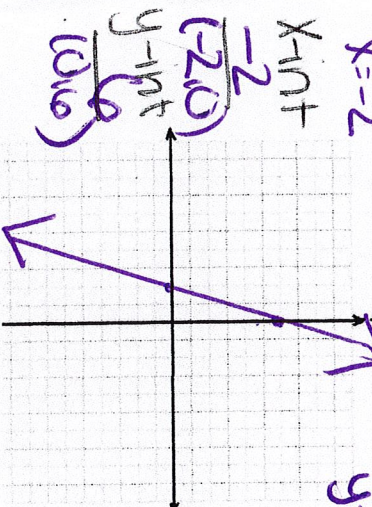
Explain how to use the Standard form of an equation to find the x and y-intercepts, and how to graph the

intercepts:

$AX + BY = C$ Plug in 0 for y, solve for x $(x, 0)$
 Plug in 0 for x, solve for y $(0, y)$

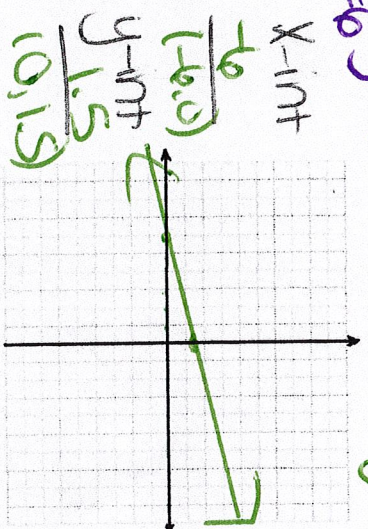
Find the x and y intercepts and graph:

3x - 0 = -6
 $3x = -6$
 $x = -2$

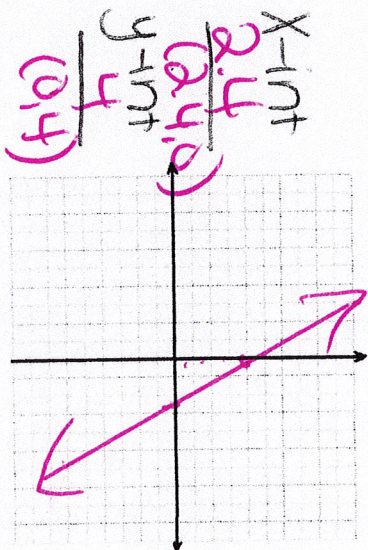


3(0) - y = -6
 $-y = -6$
 $y = 6$

$-1(0) + 4y = 6$
 $4y = 6$
 $y = 1.5$

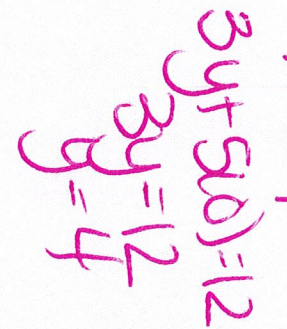


$-x + 4(0) = 6$
 $-x = 6$
 $x = -6$



3(0) + 5x = 12
 $5x = 12$
 $x = 2.4$

3y + 5(0) = 12
 $3y = 12$
 $y = 4$



Explain what the directions "write an equation in standard form using integers" means to do:

$$Ax + By = C$$

* x and y on one side, make sure x is positive.
 * constant on opposite side
 * no decimals or fractions!

Write each equation in standard form using integers:

13. $3y = x + 9$

$$\begin{array}{r} -3y - 9 = x \\ -3y - 9 = x \\ -9 = x - 3y \\ x - 3y = -9 \end{array}$$

14. $\frac{1}{2}x + 4y = \frac{1}{4}$

$$2x + 16y = 1$$

15. $-2x + 7 = -\frac{1}{5}y$

$$\begin{array}{r} -10x + 35 = -y \\ +10x \\ 35 = 10x - y \end{array}$$

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

$$\begin{array}{r} 10 - 3y = 9x \\ +3y \\ 10 = 9x + 3y \end{array}$$

17. $5y - \frac{1}{2} = 2x$

$$\begin{array}{r} -10y - 1 = 4x \\ -10y - 1 = 4x \\ -1 = 4x - 10y \end{array}$$

18. $2x + 3y = 12$

already in standard form!

19. $\frac{1}{6} = 2x - \frac{1}{3}y$

$$1 = 12x - 2y$$

20. $3y = -\frac{4}{7} + \frac{2}{3}x$

$$\begin{array}{r} 63y = -12 + 14x \\ +12 \\ 63y + 12 = 14x \\ 14x - 63y = 12 \end{array}$$

Formula for calculating slope:

Find the slope:

21. $(-3, 4)$ $(2, 8)$

$$m = \frac{8-4}{2-(-3)} = \frac{4}{5}$$

22. $(2, 0)$ $(-4, -8)$

$$m = \frac{-8-0}{-4-2} = \frac{-8}{-6} = \frac{4}{3}$$

23. Find the slope of each segment:

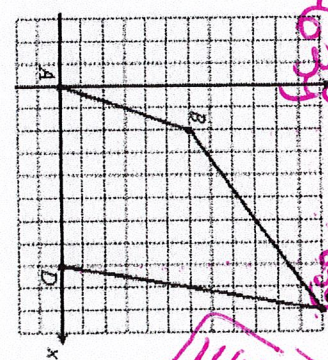
AB = $\frac{10}{8} = \frac{5}{4}$

BC = $\frac{6}{8} = \frac{3}{4}$

AD = 0

DC = $\frac{12}{8} = \frac{3}{2}$

rise/run!



24. Write an equation in standard form to model the situation: You have \$5.00 in your wallet. Gummy bears are \$0.10 each and airheads are \$0.75 each.

Gummy bears = x airheads = y

$$0.10x + 0.75y = 5$$

$$10x + 75y = 500$$

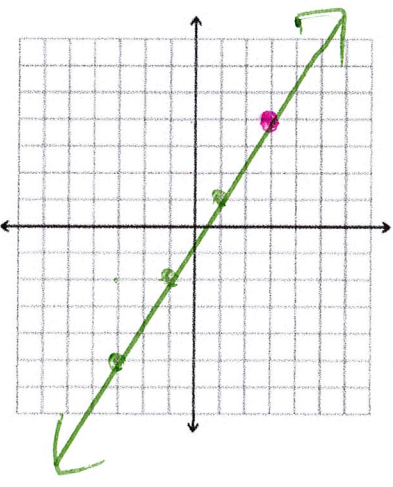
Write the point slope formula. Explain how to use the formula to graph a line.

$y - y_1 = m(x - x_1)$ Plot the point (x_1, y_1) then use the slope, m , as rise over run

Graph each equation in point slope form:

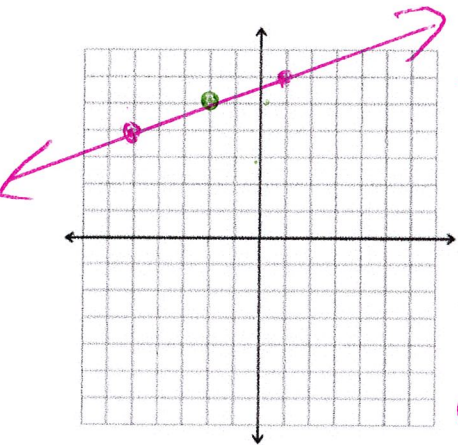
25. $y - 3 = -\frac{2}{3}(x + 4)$

Point $(-4, 3)$ $m = -\frac{2}{3}$



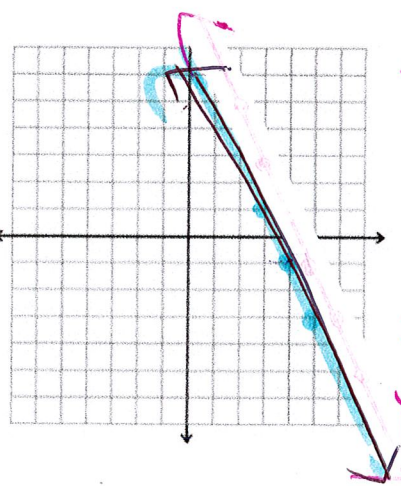
26. $y + 2 = -3(x + 5)$

Point $(-5, -2)$ $m = -3$



27. $y - 4 = \frac{1}{2}(x - 1)$

Point $(1, 4)$ $m = \frac{1}{2}$



Write an equation in A. point slope form

B. slope-intercept form

28. slope = 2 through $(-4, 5)$

A) $y - 5 = 2(x + 4)$

B) $y - 5 = 2x + 8$
 $+5$
 $y = 2x + 13$

29. Slope = $-\frac{1}{3}$ through $(-9, 7)$

A) $y - 7 = -\frac{1}{3}(x + 9)$

B) $y - 7 = -\frac{1}{3}x - 3$
 $+7$
 $y = -\frac{1}{3}x + 4$

30. Slope = $\frac{3}{4}$ through $(2, -5)$

A) $y + 5 = \frac{3}{4}(x - 2)$

B) $y + 5 = \frac{3}{4}x - \frac{3}{2}$
 -5
 $y = \frac{3}{4}x - \frac{13}{2}$

$y = \frac{3}{4}x - \frac{13}{2}$

Are the lines parallel, perpendicular, or neither? Why?

31. $y = 2x - 5, y = 2x + 5$
parallel same slope
 diff. y-int.

34. $2x - y = 6, -4x + 2y = -12$
 $\begin{array}{r} -2x - y = 6 \\ -2x - 2y = -12 \\ \hline +4x +4x = -12 \end{array}$

either $y = -2x + 6$ or $y = 2x - 6$
 same line!

Write an equation in slope intercept form for the line PARALLEL to the given line through the point.

38. $y = \frac{2}{3}x + 8$ (-15, 20)

$y - 20 = \frac{2}{3}(x + 15)$
 $y - 20 = \frac{2}{3}x + 10$
 $+20$
 $y = \frac{2}{3}x + 30$

32. $y = -\frac{1}{3}x + 4, y = 3x + 4$
perpendicular slopes are opp. reciprocals

35. $6y = 4x + 18, 3x + 2y = -2$
 $\begin{array}{r} 6y = 4x + 18 \\ -6y = -3x - 6 \\ \hline 0 = x + 12 \end{array}$

$y = \frac{2}{3}x + 3$
perpendicular slopes opp. reciprocals
 $y = -\frac{3}{2}x - 1$

39. $5x - 4y = 40$ (24, -5)

$\begin{array}{r} -4y = -5x + 40 \\ +4y = -5x + 40 \\ \hline 0 = -5x + 40 \end{array}$
 $y = \frac{5}{4}x - 10$
 $m = \frac{5}{4}$
 $y - 5 = \frac{5}{4}(x - 24)$
 $y - 5 = \frac{5}{4}x - 30$
 $+5$
 $y = \frac{5}{4}x - 35$

33. $y = \frac{5}{3}x + 9, y = \frac{3}{5}x - 2$
neither slopes are reciprocals but not opposites

37. $5y - 5x = 30, 4x = 4y + 16$
 $\begin{array}{r} 5y - 5x = 30 \\ -5x + 4y = 16 \\ \hline 5y - 9x = 14 \end{array}$

$y = \frac{5}{4}x + 3$
 $y = x + 4$
parallel same slope diff. y-int.

40. $3x - y = 10$ (12, 4)

$\begin{array}{r} -y = -3x + 10 \\ +y = -3x + 10 \\ \hline 0 = -3x + 10 \end{array}$
 $m = 3$
 $y - 4 = 3(x - 12)$
 $y - 4 = 3x - 36$
 $+4$
 $y = 3x - 32$

Write an equation in slope intercept form for the line PERPENDICULAR to the given line through the point.

41. $y = -2x + 10$ (20, 24)

$m = -2$
 $\perp m = \frac{1}{2}$
 $y - 24 = \frac{1}{2}(x - 20)$
 $y - 24 = \frac{1}{2}x - 10$
 $+24$
 $y = \frac{1}{2}x + 14$

42. $3x + 9y = 18$ (-2, 5)

$\begin{array}{r} -3x - 9y = 18 \\ +3x = -3x + 18 \\ \hline 0 = -9y + 18 \end{array}$
 $y = -\frac{1}{3}x + 2$
 $m = -\frac{1}{3}$
 $\perp m = 3$
 $y - 5 = 3(x + 2)$
 $y - 5 = 3x + 6$
 $+5$
 $y = 3x + 11$

43. $4x - 3y = -24$ (9, 12)

$\begin{array}{r} -4x + 3y = -24 \\ +4x = -4x - 24 \\ \hline 0 = 3y - 24 \end{array}$
 $y = 4$
 $m = \frac{4}{3}$
 $\perp m = -\frac{3}{4}$
 $y - 12 = -\frac{3}{4}(x - 9)$
 $y - 12 = -\frac{3}{4}x + \frac{27}{4}$
 $+12$
 $y = -\frac{3}{4}x + \frac{75}{4}$