

UNIT 3 PART 11

✓ Objective: Find the slope given two points. ☺ ☹ ☹

1. Find the slope of the line and identify the line as horizontal, vertical, or diagonal (2, -4) and (2, -3)

$$m = \frac{-3 - (-4)}{2 - 2} = \frac{1}{0}$$

undefined
vertical
line

2. Find the value of y so that the line has the given slope $m = -\frac{5}{4}$; (5, y), (9, 7).

$$-\frac{5}{4} = \frac{7 - y}{9 - 5}$$

$$-\frac{5}{4} = \frac{7 - y}{4}$$

$$-20 = 4(7 - y)$$

$$-20 = 28 - 4y$$

$$-48 = -4y$$

y = 12

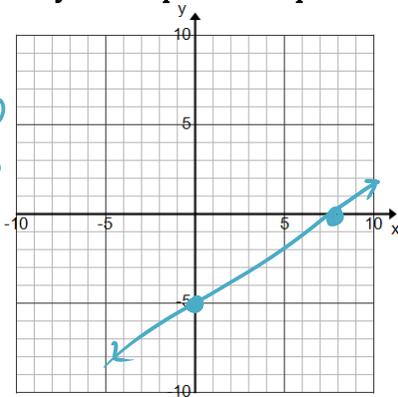
✓ Objective: Find the x and y intercepts of an equation and graph using intercepts. ☺ ☹ ☹

3. $5x - 8y = 40$

x: $5x = 40$ y: $-8y = 40$
 $x = 8$ $y = -5$

x-intercept: (8, 0)

y-intercept: (0, -5)

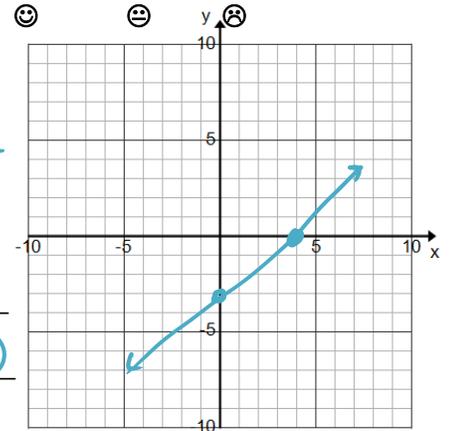


4. $3x - 4y = 12$

x: $3x = 12$ y: $-4y = 12$
 $x = 4$ $y = -3$

x-intercept: (4, 0)

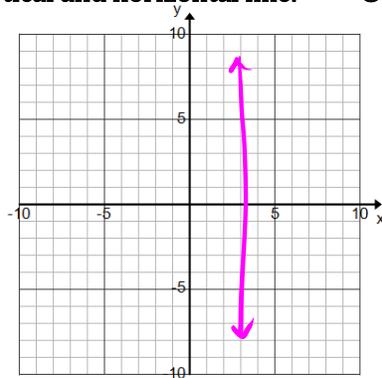
y-intercept: (0, -3)



✓ Objective: Graph a vertical and horizontal line. ☺ ☹ ☹

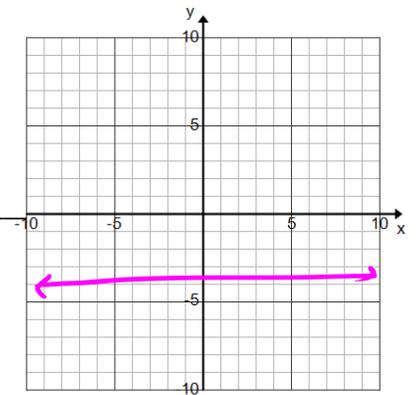
5. Graph $x = 3$

Slope = undefined



6. Graph $y = -4$

Slope = zero

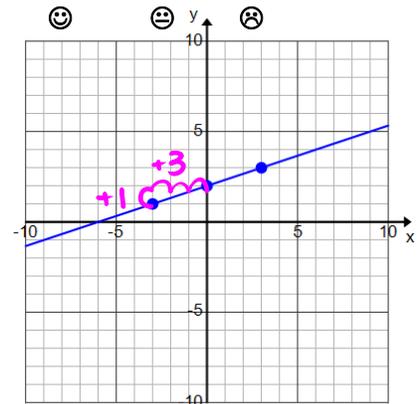


✓ Objective: Identify the slope and y-intercept from a graph or equation. ☺ ☹ ☹

7. Slope = $\frac{1}{3}$ y-intercept = (0, 2)

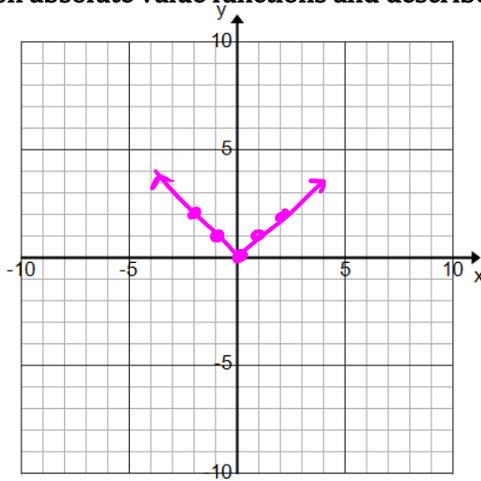
Equation of the line in slope-intercept form:

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



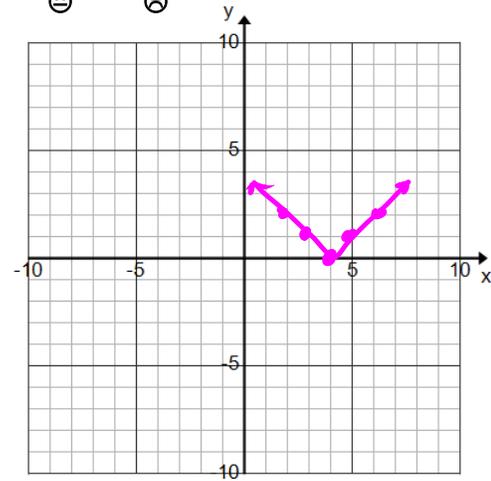
✓ Objective: Graph absolute value functions and describe the transformations. ☺ ☹ ☹

8. Graph $y = |x|$



9. Graph $y = |x - 4|$

Right 4



(10-12) Describe the transformation from the graph $y = |x|$.

10. $y = |x| + 5$
up 5

11. $y = -|x + 9|$
• Reflect over x-axis
• Left 9

12. $y = |-x| - 12$
• Reflect over y-axis
• DOWN 12

(13-14) Write the equation to represent the graph described.

13. The absolute value graph is shifted 3 units to the right.

$$y = |x - 3|$$

14. The absolute value graph is reflected over the y-axis and shifted up 6 units.

$$y = |-x| + 6$$

UNIT 4

✓ Objective: Write an equation in Slope-Intercept Form: $y = mx + b$ ☺ ☹ ☹

15. $m = \frac{3}{2}$ and point (0, -5)

$$b = -5$$

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

16. $f(-6) = 2$ and $f(-2) = -10$

$$(-6, 2) \quad (-2, -10)$$

$$m = \frac{-10 - 2}{-2 - (-6)} = \frac{-12}{4} = -3 = m$$

$$y = -3x + b$$

$$2 = -3(-6) + b$$

$$2 = 18 + b$$

$$y = -3x - 16$$

✓ Objective: Write an equation in Point-Slope Form: $y - y_1 = m(x - x_1)$ ☺ ☹ ☹

17. $m = -4$ and point (-2, -5)

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

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

18. Points (4, 7) and (-3, -6)

$$m = \frac{-6 - 7}{-3 - 4} = \frac{-13}{-7} = \frac{13}{7}$$

$$y - 7 = \frac{13}{7}(x - 4) \text{ or } y + 6 = \frac{13}{7}(x + 3)$$

✓ Objective: Write an equation in Standard Form: $Ax + By = C$

19. $y - 3 = -7(2x - 3)$
 $y - 3 = -14x + 21$
 $y = -14x + 24$

20. Points $(-2, 2)$ and $(-4, -6)$
 $m = \frac{2 - (-6)}{-2 - (-4)} = \frac{8}{-2} = -4 = m$
 $y - 2 = 4(x + 2)$
 $y - 2 = 4x + 8$
 $y = 4x + 10$
 $-4x -4x$
 $-4x + y = 10$ (Standard Form)

✓ Objective: Writing Equations of Parallel and Perpendicular Lines.

21. Are the two lines parallel, perpendicular, or neither?

$y = -5x + 3$ $-2y = -10x + 20$
 $m = -5$ $\frac{-2y}{-2} = \frac{-10x}{-2} + \frac{20}{-2}$
 $y = 5x - 10$
 $m = 5$
Neither

22. Write an equation in slope-intercept form that is perpendicular to $y = \frac{-1}{2}x + 1$ and goes through $(-1, 4)$.

$m = 2$
 $y = 2x + b$
 $4 = 2(-1) + b$
 $4 = -2 + b$
 $b = 6$
 $y = 2x + 6$

✓ Objective: Solve Linear Application Problems.

23. Corey Crawford's beard grows at a rate of 3 centimeters per week. He started with a beard that was 2.5 centimeters long.

a) Define the variables

$x = \text{weeks}$
 $y = \text{centimeters}$

b) Write the equation in slope-intercept form.

$y = 3x + 2.5$

c) How long will Corey's beard be after 2 months (8 weeks)?

$y = 3(8) + 2.5$
 $y = 24 + 2.5$
 $y = 26.5 \text{ cm}$



24. Miss Palumbo travels to Japan over Spring Break to visit friends and brings her amazing camera along to capture great memories! On day 3 of the trip, she took 46 pictures. On day 7, she took 98 pictures.

a) Define the variables.

$x = \text{\# of days}$ $(3, 46)$
 $y = \text{\# of pictures}$ $(7, 98)$

b) Write an equation in point-slope form

$m = \frac{98 - 46}{7 - 3} = \frac{52}{4} = 13 = m$
 $y - 46 = 13(x - 3)$

c) How many days was she in Japan if she took 163 pictures?

$y - 46 = 13x - 39$
 $y = 13x + 7$
 $163 = 13x + 7$
 $156 = 13x$
 $x = 52 \text{ pictures}$



25. Mr. Melen decides to shop at Whole Foods for some healthy snacks. Oranges cost \$3 and an apple cost \$2. Mr. Melen spent \$45 at the store.

a) Define the variables.

$x = \# \text{ of oranges}$
 $y = \# \text{ of apples}$

b) Write an equation in standard form

$$3x + 2y = 45$$

c) If Mr. Melen buys 11 oranges, how many apples does he buy?



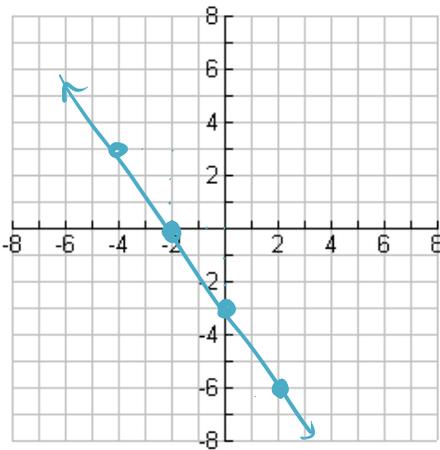
$$\begin{aligned} 3(11) + 2y &= 45 \\ 33 + 2y &= 45 \\ -33 \quad -33 & \\ 2y &= 12 \\ y &= 6 \end{aligned}$$

He bought 6 apples

✓ Objective: Graph from slope-intercept form, point-slope form, or using intercepts. ☺ ☹ ☹

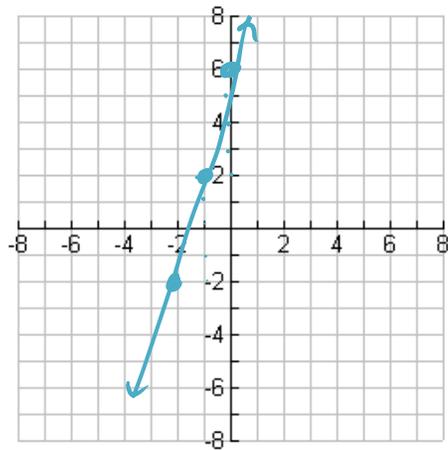
25. $y = -\frac{3}{2}x - 3$

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



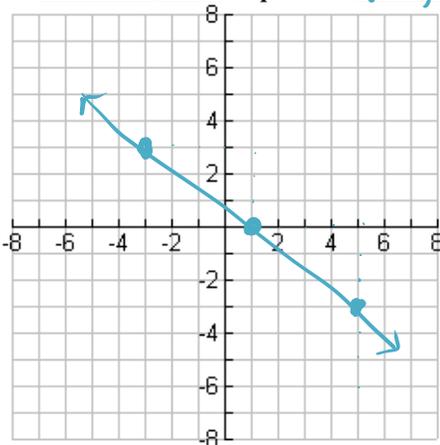
26. $-4x + y = 6$ $y = 4x + 6$

$m = 4$ $b = 6$



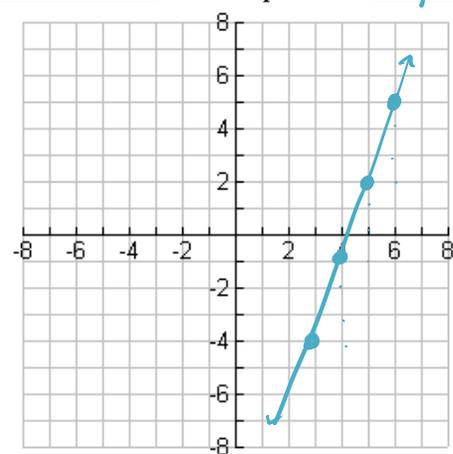
27. $y + 3 = -\frac{3}{4}(x - 5)$

$m = -\frac{3}{4}$ point = (5, -3)



28. $y - 5 = -3(x - 6)$

$m = -3$ point = (6, 5)



SELF-REFLECT: What was the EASIEST part of this study guide?? What was the most CHALLENGING?! What are you going to do to study for the Quarter 3 Exam?!?