

Name: SOLUTIONS Date: _____ Period: _____

Unit 2a Review

1. Write out the slope formula between two points.

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

2. Write out the point-slope form.

$$y - y_1 = m(x - x_1)$$

3. Write out the slope-intercept form.

$$y = mx + b$$

4. Write out the linear standard form.

$$Ax + By = C$$

5. How are rate of change and slope related?

THEY BOTH SHOW A RELATIONSHIP BETWEEN TWO THINGS.

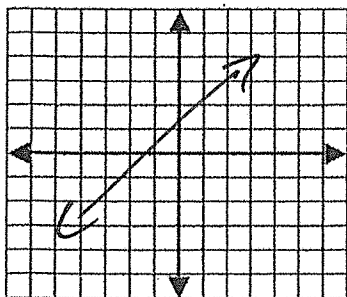
6. What is the slope of a vertical line?

$m = \text{UNDEFINED}$

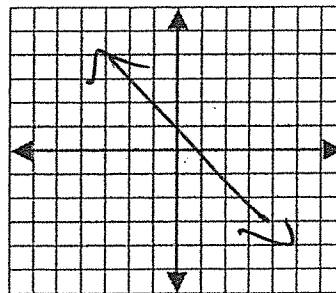
7. What is the slope of a horizontal line?

$m = 0$

8. Sketch a function with a positive slope.



9. Sketch a function with a negative slope.



10. Find the slope of the line that passes between the two points

(1, 2) and (-2, 5)

$$m = \frac{5 - 2}{-2 - 1} = \frac{3}{-3} = -1$$

11. Find the slope of the line that passes between the two points

(-2, 2) and (-2, 3)

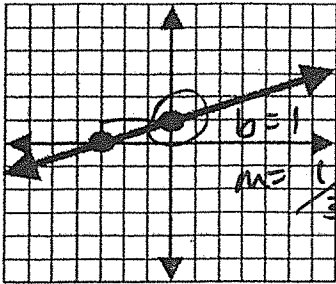
$$m = \frac{3 - 2}{-2 - (-2)} = \frac{1}{0} = \text{UNDEFINED}$$

12. Find the slope of the line that passes between the two points

(10, 6) and (-3, 6)

$$m = \frac{6 - 6}{-3 - 10} = \frac{0}{-13} = 0$$

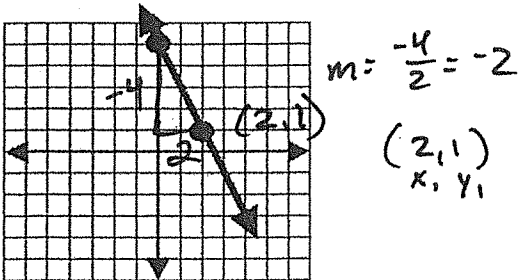
13. Write the equation of the graph below in point slope form. Then convert your equation into standard form.



$y = mx + b$
Slope - Intercept form: $y = \frac{1}{3}x + 1$

$Ax + By = C$ Standard form: $-\frac{1}{3}x + y = 1$

14. Write the equation of the graph below in point slope form. Then convert your equation into standard form.



$y - y_1 = m(x - x_1)$
Point - Slope Form: $y - 1 = -2(x - 2)$

Standard Form: $2x + y = 5$

$$\begin{array}{r} y - 1 = -2(x - 2) \\ y - 1 = -2x + 4 \\ +1 \qquad +1 \\ \hline y = -2x + 5 \\ +2x \quad +2x \\ \hline 2x + y = 5 \end{array}$$

15. Write the equation of the line that passes through the points (1, 3) and (4, -3).

$$m = \frac{3 - (-3)}{1 - 4} = \frac{3 + 3}{1 - 4} = \frac{6}{-3} = -\frac{3}{2}$$

$$y = mx + b$$

$$3 = -\frac{3}{2}(1) + b$$

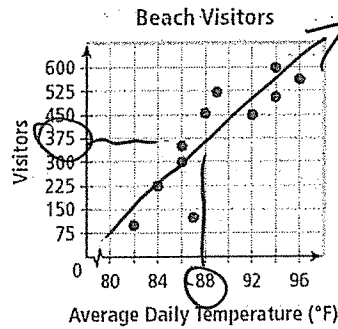
$$3 = -\frac{3}{2} + b$$

$$+\frac{3}{2} \quad +\frac{3}{2}$$

$$5 = b$$

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

16. Use the graph below to answer the following questions.



Does the graph show a positive, negative, or no relation?

What is the expected number of visitors when the daily temperature is about 88°F? 375

17. The slope of the line that passes through the points $(-6, w)$ and $(-10, 4)$ is $\frac{1}{8}$. What is the value of w ?

a. 36 $\frac{1}{8} = \frac{4-w}{-10-(-6)}$

b. 34 $\frac{1}{8} = \frac{4-w}{-10+6}$

c. $\frac{9}{2}$ $\frac{1}{8} = \frac{4-w}{-4}$
 $(4) \frac{1}{8} = \frac{4-w}{-4}$

d. $\frac{1}{2}$ $-\frac{4}{8} = \frac{4-w}{+4}$ $-\frac{4}{2} = -w$

18. If the value of y varies directly with x , which function represents the relationship between x and y if $y = 48$ when $x = 3$?

a. $y = (48)(3)$

b. $y = \frac{1}{16}x$

c. $y = 16x$

$y = ax$
 $48 = a(3)$

$\frac{48}{3} = \frac{a(3)}{3}$

$16 = a$

$y = 16x$

19. Suppose y varies directly with x . Write an equation for the direct variation if $y = 24$ when $x = 3$.

A $y = 72x$

B $y = \frac{8}{x}$

C $y = 8x$

D $y = \frac{1}{8}x$

$y = ax$

$24 = a(3)$

$\frac{24}{3} = \frac{a(3)}{3}$

$8 = a$

$y = 8x$

20. Which is NOT a true statement?

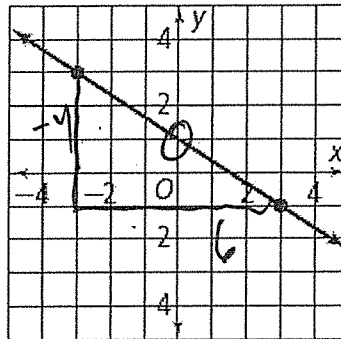
A The graph of $y = 5$ is a horizontal line.

B The graph of $y = 5$ has a zero slope.

C The graph of $x = 5$ has an undefined slope.

D The graph of $x = 5$ is a horizontal line. **VERTICAL**

21. Which function rule is graphed below?



$b = 1$

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

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

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

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

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

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

22. What is the slope of the line of $4x + y = 10$?

REWRITE $y = mx + b$

A 0

B -4

C 10

D undefined

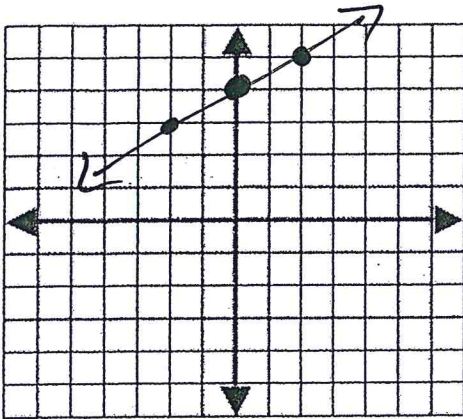
$4x + y = 10$
 $-4x \quad -4x$

$y = -4x + 10$

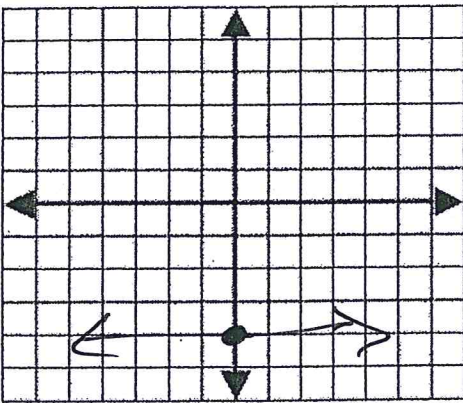
$m = -4$

Graph the following equations

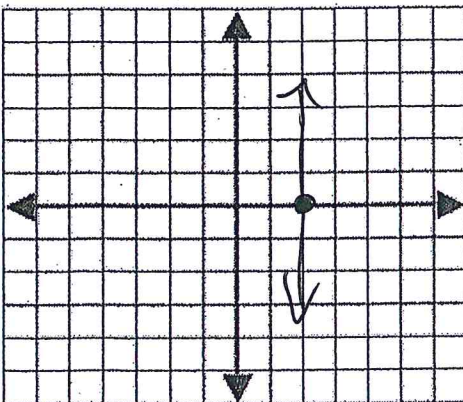
23. $y = \frac{1}{2}x + 4$ $m = \frac{1}{2}$ $b = 4$



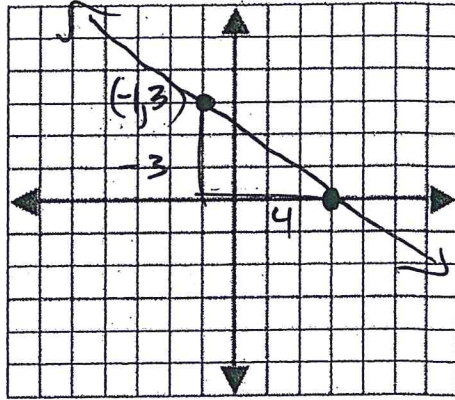
24. $y = -4$ HORIZONTAL LINE



25. $x = 2$ VERTICAL LINE



26. $y - 3 = -\frac{3}{4}(x + 1)$ $m = -\frac{3}{4}$, $(-1, 3)$



METHOD 1

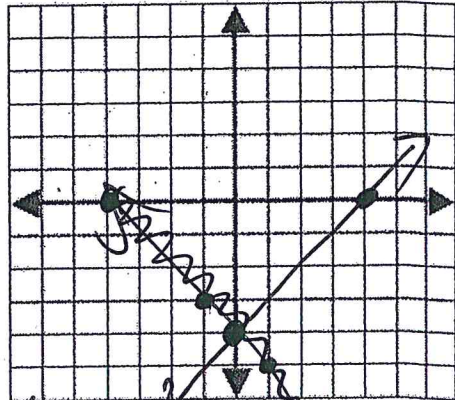
27. $7x - 7y = 28$ REWRITE $y = mx + b$
 $-7x$ $-7x$

$$-7y = -7x + 28$$

$$\frac{-7y}{-7} = \frac{-7x}{-7} + \frac{28}{-7}$$

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

$$y = +x - 4 \quad b = -4$$



METHOD 2

$$7(0) - 7y = 28$$

$$0 - 7y = 28$$

$$\frac{-7y}{-7} = \frac{28}{-7} \quad y = -4$$

$$7x - 7(0) = 28$$

$$7x = 28$$

$$\frac{7x}{7} = \frac{28}{7}$$

$$x = 4$$