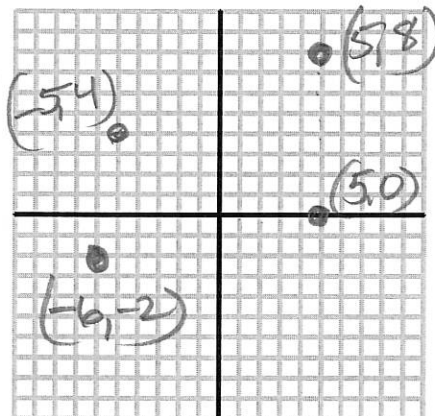


Name: _____ Date: _____

1. a) Graph each coordinate and label. b) Name the quadrant in which coordinate is located.

- a. A(5, 8) Quadrant I
- b. B(-5, 4) Quadrant II
- c. C(5, 0) Quadrant y axis
- d. D(-6, -2) Quadrant III
- e. E(-4, 5) Quadrant II



2. What is the difference between a relation and a function?

a function has exactly one output
no repeating x's

Decide if the relation is a function (yes or no). Then state the domain, range and the inverse.

3. (2, 5), (5, -2), (0, -1), (0, 1), (3, 4)

function? NO
Domain: {2, 5, 0, 3}
Range: {5, -2, -1, 1, 4}

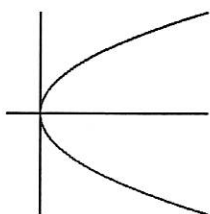
4. (2, -3), (-1, 3), (8, 9), (-1, 7)

function? yes
Domain: {2, -1, 8}
Range: {-3, 3, 9, 7}

4. Determine if the following relations in each graph is a function How did you come to this conclusion?

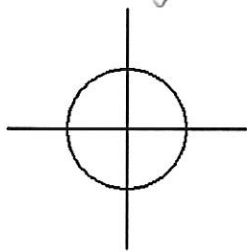
Explain

a) NO

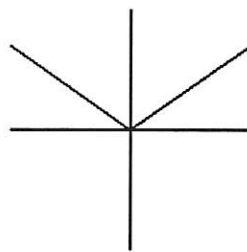


doesn't pass VLT

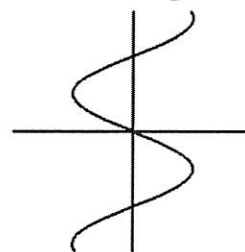
b) NO



c) yes



d) yes



yes passes VLT

Name: _____ Date: _____

5. Which ordered pairs are solutions to the equation:

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

A. (0, 6)
NO

B. $(1, \frac{9}{2})$
NO

C. $(\frac{1}{2}, \frac{3}{2})$
yes

D. (5, 92)
NO

E. $(\frac{11}{2}, -\frac{9}{4})$
yes

$$3(6) + 0 = 2$$

NO

$$3(\frac{9}{2}) + \frac{1}{2} = 2$$

NO

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

$$3(-\frac{9}{4}) + \frac{1}{2}(\frac{11}{2}) = 2$$

$$-4 + \frac{11}{2} = 2$$

6. Find each value if $f(x) = \frac{1}{3}x + 3$ and $g(x) = 3x^4 - x$

a.) $f(3) = 4$

b.) $f(-\frac{2}{3}) = 2\frac{7}{9}$

c.) $g(-2) = 50$

d.) $f(b-2) = \frac{1}{3}b + \frac{7}{3}$

7. Determine if each equation is linear. Explain.

a. $2x + 6y = 15$

yes in standard form

b. $12 - x = 5y$

$$-x - 5y = -12$$

yes

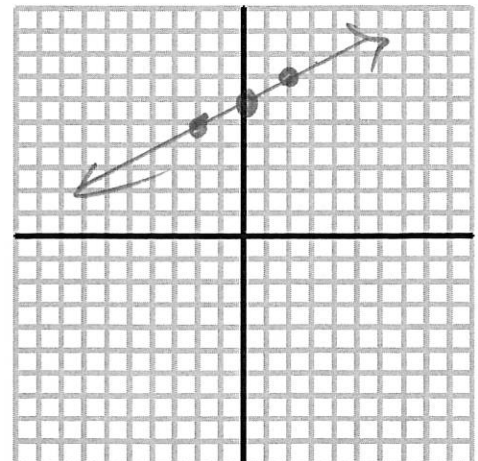
c. $x^2 - 2y^2 = 8$

NO squared

8. Solve each equation for y. Graph each equation by picking three appropriate values for the domain and finding the range. Plot each ordered pair and label.

$$\frac{1}{4}x = \frac{1}{2}y - 3$$

$$y = \frac{1}{2}x + 6$$



Equation			
Domain	$\frac{1}{2}x + 6$	Range	(x,y)
0		6	(0,6)
2	$\frac{1}{2}(2) + 6$	7	(2,7)
-2	$\frac{1}{2}(-2) + 6$	5	(-2,5)

9. What is slope and how can it be calculated giving 2 coordinates? A graph?

$m = \text{slope}$
Slope is steepness of line

$$m = \frac{y_2 - y_1}{x_2 - x_1} \rightarrow \frac{\text{rise}}{\text{run}}$$

10. What is the slope intercept form of a line?

$$y = mx + b$$

11. What is the standard form of a line?

$$Ax + By = C$$

12. What is the point slope form of a line?

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

13. Explain how to graph each form:

Slope-intercept form

- * Plot y int
- * use slope to find next pt
- * connect pts

Standard form cover up

- * let $x=0$ find y
- * let $y=0$ find x
- * plot intercepts
- $(0, \text{---})$ $(\text{---}, 0)$
connect

Point-slope form

- * plot point (x_1, y_1)
- * use slope to find additional pts
- * connect pts

Identify the form of each equation, then the information that that form gives you, then graph.

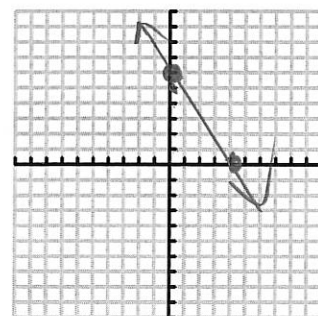
14. $\frac{1}{2}x + \frac{1}{3}y = 2$

Form: modified standard

Important information:

#1 $x=0$ $y=6$

#2 $y=0$ $x=4$



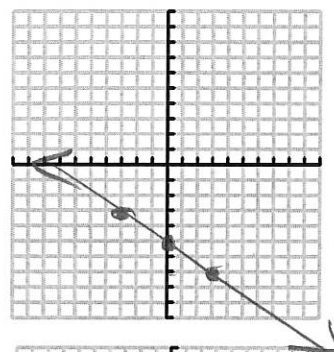
$y = -\frac{2}{3}x - 5$

Form: $y = mx + b$

Important information:

#1 y int $(0, -5)$

#2 slope $-\frac{2}{3}$



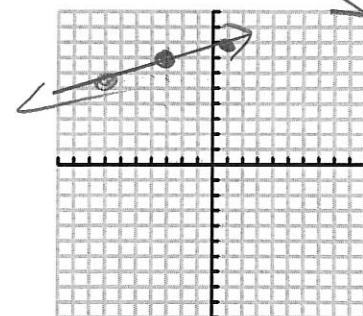
15. $y - 7 = \frac{1}{4}(x + 3)$

Form: point slope

Important information:

#1 plot pt $(-3, 7)$

#2 use slope to find additional pts



16. Describe the slope of a line that is:

a. Rising positive

c. Horizontal 0 slope

b. Falling negative

d. Vertical undefined

17. If you were given an equation in standard form, how would you find the slope?

convert to slope intercept form

18. Which line is steepest and why?

$$\frac{1}{4}x + 3y = 24$$

$$y = -\frac{1}{12}x + 8$$

$$y = 4x - 2$$

$$y - 3 = \frac{5}{3}(x - 5)$$

The line with the equation $y = 4x - 2$ is the steepest. I know this because slope is largest

Write the equation of the line that passes through the given point and the given slope

19. $(-2, -4)$ $m = \frac{3}{4}$

Slope-intercept form: $y = \frac{3}{4}x - 2.5$ Standard form: $-3x + 4y = -10$

20. $(1, 3)$ $m = \text{undefined}$

Slope-intercept form: $x = 1$ Standard form: $x = 1$

21. Write the equation of the line that passes through $(2, 5)$ and $(10, 21)$

Point slope form

$$\frac{21-5}{10-2} = \frac{16}{8} = 2$$

is parallel to the line that
 $y + 3 = 2(x - 0)$

Slope-intercept form

$$y = 2x - 3$$

Standard form

$$-2x + y = -3$$

22. Write the equation of the line that passes through (-3, 3) and ~~(0, 2)~~.

is perpendicular to $y = 3x - 5$

Point slope form

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

Slope-intercept form

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

Standard form

$$\frac{1}{3}x + y = 2$$
$$x + 3y = 6$$

Find the slope and y-intercept of each line

23. $y + 4 = -2(x + 7)$

Slope: -2 y-intercept: -18

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

Slope: 2/5 y-intercept: -1

Find the x-intercept, y-intercepts of each line and the slope. Does the line rise or fall from left to right?

25. $2x - 8y = 16$

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

rise to right

26. $8x - y = -24$

$$y = 8x + 24$$

rise to right

27. . You are sent to the store with \$30 to buy sliced meat for a party. Roast beef is \$4.29/lb and turkey is \$3.99/lb.

a. Write an equation to model this situation: $4.29r + 3.99t = 30$

b. If you buy 4 pounds of turkey, how many pounds of roast beef can you buy?

$$4.29r + 3.99(4) = 30$$

3 lbs of roast beef

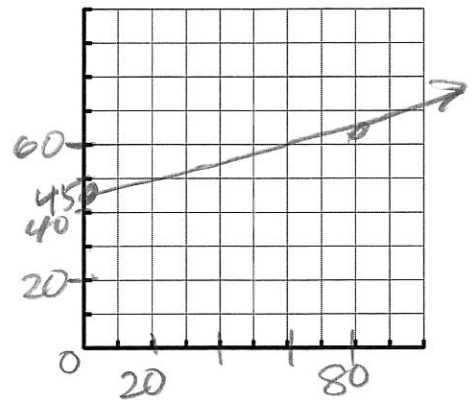
28. . The Grinchy Car Rental charges a flat fee of \$45 plus \$0.25 per mile to rent a compact car

a. Write an equation to model the situation: $y = .25x + 45$

b. Sketch the graph of the linear model.

c. What will the total cost be if you drive 75 miles?

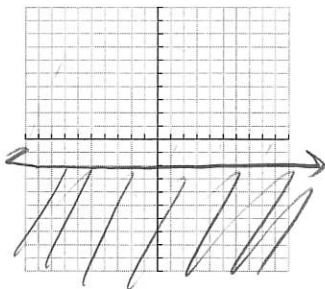
$$y = .25(75) + 45$$



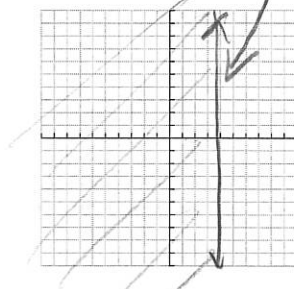
d. Your total cost was \$88.75. How many miles did you drive?

Graph each inequality

29. $y \leq -2$

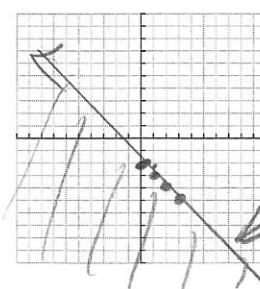


30. $x < 4$

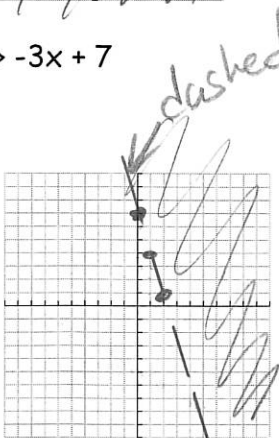


30. $x + y < -2$

$y = -x - 2$
 $y < -x - 2$

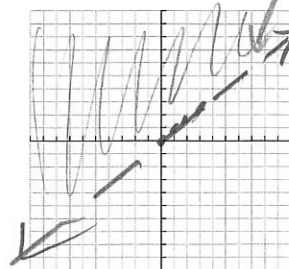


31. $y > -3x + 7$

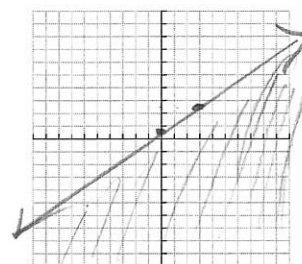


32. $x < y$

$y > x$



33. $3y - 2x \leq 2$



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

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