

Study Guide for Midterm

Date _____ Period _____

Solve each equation.

1) $2m + 26 = -5(3m + 5)$

$m = -3$

2) $-19 + 2n = -(-4n + 5)$

$n = -7$

3) $-\frac{3}{4} = -\frac{1}{4}\left(k + \frac{3}{2}\right)$

A) $\left\{\frac{3}{2}\right\}$

B) $\left\{4\frac{1}{2}\right\}$

C) $\left\{8\frac{1}{12}\right\}$

D) No solution.

4) $3n + \frac{4}{3}n = \frac{13}{6}$

A) $\left\{\frac{1}{2}\right\}$

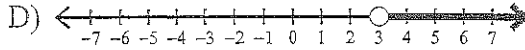
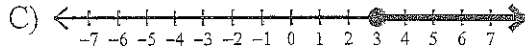
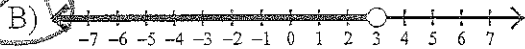
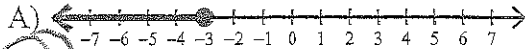
B) $\left\{-1\frac{1}{8}\right\}$

C) $\left\{\frac{2}{7}\right\}$

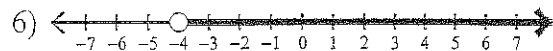
D) $\left\{1\frac{3}{5}\right\}$

Draw a graph for each inequality.

5) $x < 3$



Write an inequality for each graph.



A) $b \leq -4$

B) $b > -4$

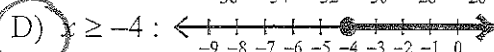
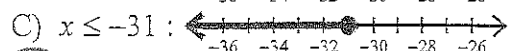
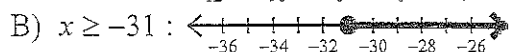
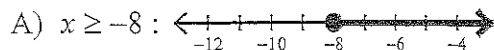
C) $b > -4$

D) $b < -4$

Solve each inequality and graph its solution.

7) $-50 \leq 2(-5 + 5x)$

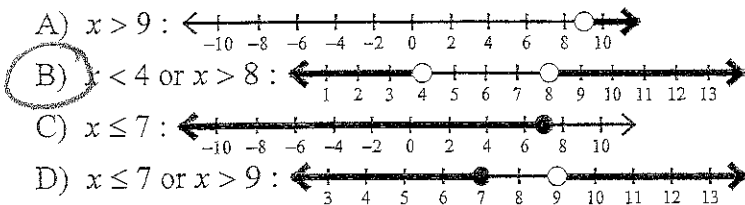
$-4 \leq x$



Solve each compound inequality and graph its solution.

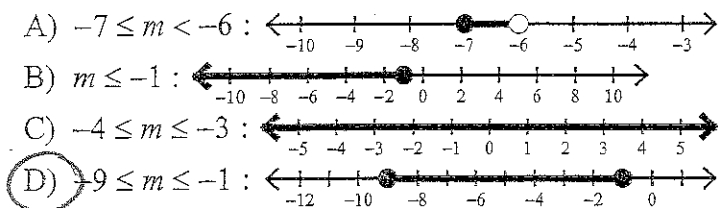
8) $-3x > -12$ or $\frac{x}{4} > 2$

$x < 4$ or $x > 8$



$-9 \leq m \leq -1$

9) $-8 \leq 1 + m \leq 0$



Solve each inequality and graph its solution.

10) $-6|2n| < -60$

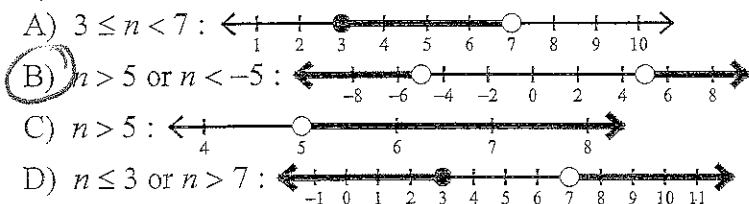
$|2n| > 10$

$2n > 10$

$-(2n) > 10$

$n > 5$

$n < -5$



Solve each equation.

11) $\frac{-6m}{4} = 1$

$|-6m| = 4$

$-6m = 4$

$-(-6m) = 4$

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

$6m = 4$

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

$m = \frac{4}{6}$

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

A) $\left\{-\frac{2}{3}, \frac{2}{3}\right\}$

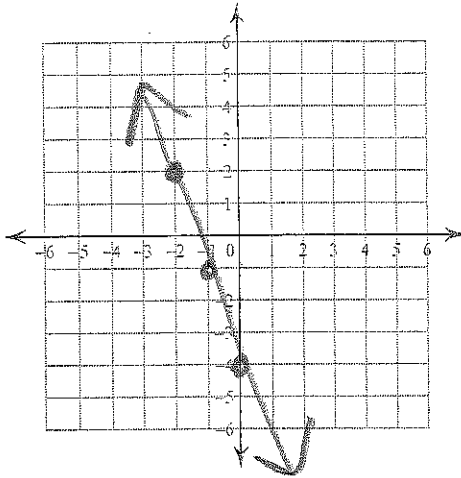
B) $\{4\}$

C) $\{4, -4\}$

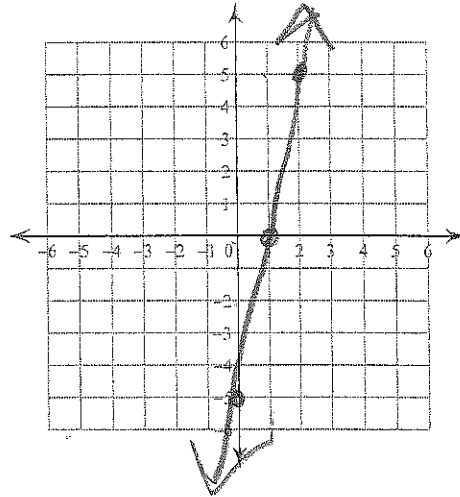
D) $\{9, -9\}$

Sketch the graph of each line.

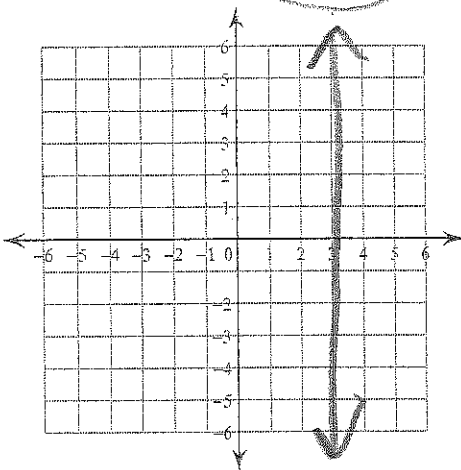
12) $3x + y = -4$ $y = -3x - 4$



13) $y = 5x - 5$

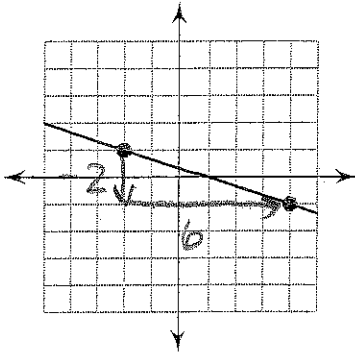


14) $x = 3$ HOY VUX



Find the slope of each line.

15)



- A) 3 B) $\frac{1}{3}$
C) -3 D) $-\frac{1}{3}$

Find the slope of the line through each pair of points.

16) (8, 13), (19, 10)

A) $-\frac{11}{3}$

B) $-\frac{3}{11}$

C) $\frac{11}{3}$

D) $\frac{3}{11}$

$$m = \frac{13-10}{8-19}$$

$$m = \frac{3}{-11}$$

Find the value of x or y so that the line through the points has the given slope.

17) (2, y) and (-5, 1); slope: $\frac{1}{7}$

A) 2

B) 4

C) -4

D) -9

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

$$\frac{1}{7} = \frac{y-1}{7}$$

$$y-1=1$$
$$y=2$$

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

18) Slope = -3, y-intercept = 5

$$y = -3x + 5$$
$$y = mx + b$$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

19) through: $(-4, 4)$, slope $= -\frac{9}{4}$

A) $y = -\frac{1}{4}x - 5$

B) $y = -5x + \frac{1}{4}$

C) $y = \frac{1}{4}x - 5$

D) $y = -\frac{9}{4}x - 5$

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

$$y - 4 = -\frac{9}{4}(x + 4)$$

$$y - 4 = -\frac{9}{4}x - 9$$

$+4 \qquad \qquad \qquad +4$

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

Write the standard form of the equation of the line described.

20) through: $(-3, -2)$, parallel to $y = \frac{2}{3}x + 3$

A) $x + 3y = 0$

B) $2x - 3y = 0$

C) $x - 3y = -15$

D) $4x + 3y = 0$

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

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

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

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

$-2 \qquad \qquad \qquad -2$

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

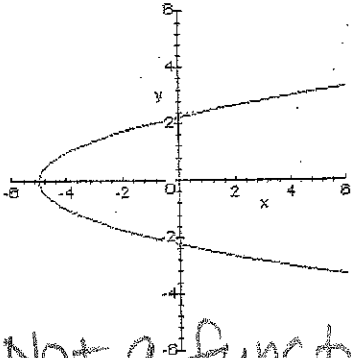
$$-y \qquad \qquad -y$$

$$0 = \frac{2}{3}x - y$$

$$0 = 2x - 3y$$

Midterm Study Guide Day 2

1) Determine if the graph at the below is a function.



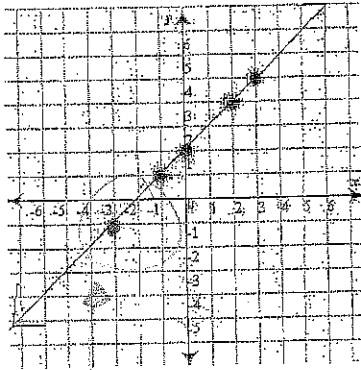
Not a function

2) Determine if the relation represents a function.

$\{(2, 3), (2, 4), (2, 5), (2, 6)\}$

Not a function

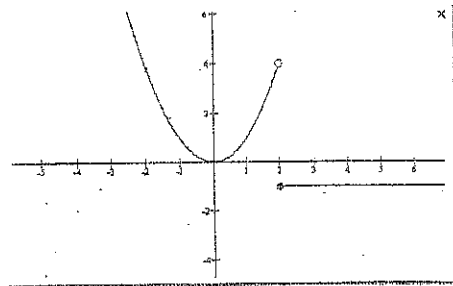
3) Using the graph below, find $f(-3)$.



$f(-3) = -1$ ← the way it should be written

4) Answer the following questions about the piecewise graph below.

- 4. Is the graph a function? *yes*
- 5. Is 3 in the domain? *yes*
- 6. Is 5 in the range? *yes*
- 7. What is the range for a domain value of 7? *-1*
- 8. What is the domain for a range value of 2? *-1*



(you need both!)

5) You are collecting tickets at the Stetson Talent Show. Adult tickets are \$5.00 and student tickets are \$2.50. After the show your collection box shows that 500 people paid admission. You count \$2000 from the sale of the tickets. You are just about ready to leave to be with your friends when Mrs. Stauffer says, "By the way, how many of each ticket did we sell? Rather than sorting all the tickets you decide to use algebra to calculate the answer. What do you tell Mrs. Stauffer?"

Cell phone companies use equations to determine how much to charge monthly. For example, a company charges \$30 for the monthly service and \$.05 for each call.

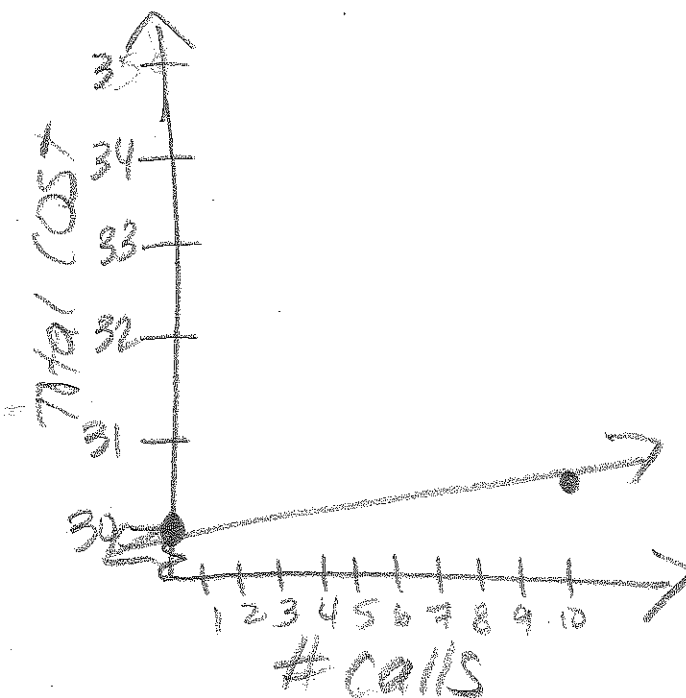
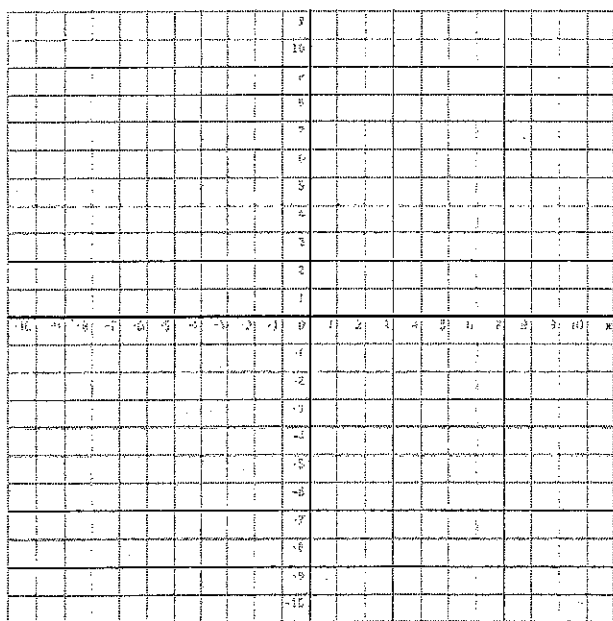
- a. Write an equation to model how much the cell company charges.

$$y = 30 + .05x$$

- b. What do the slope and y-intercept of the graph represent in this situation?

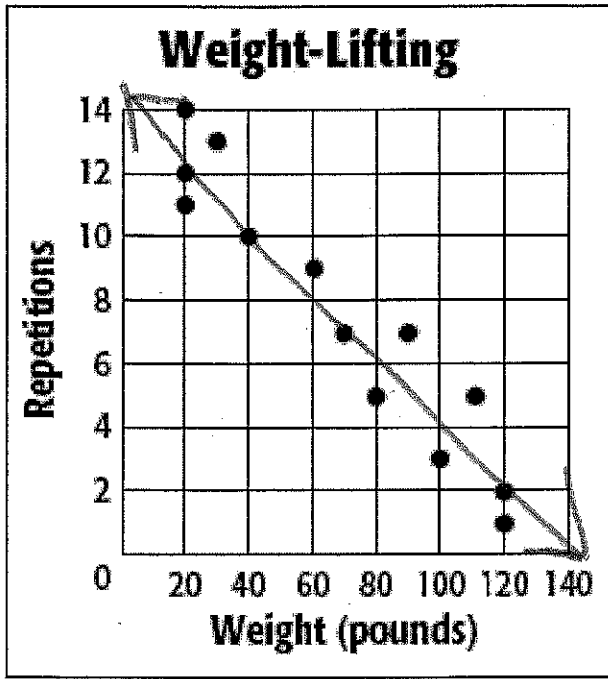
30 is flat charge (y-intercept)
 .05 is the charge per call (slope)

- c. Graph the equation you wrote. Label each axis appropriately.



- d. What is the rate of change in this equation?

\$.05 per call



14. Describe the correlation of the given scatter plot. (1 point)

Negative

15. Draw a best fit line. (1 point)

16. Which equation could be used as the best fit line for the graph? (2 points)

a. $y = -\frac{1}{10}x + 14$

b. $y = -10x + 14$

c. $y = -10x + 8$

d. $y = -\frac{1}{10}x + 8$

17. Using your choice from #16, predict the repetitions for someone who lifts 50 pounds? (1 point)

$$y = -\frac{1}{10}(50) + 14$$

$$y = -5 + 14$$

$$y = 9$$

We can predict about 9 reps for 50 lbs.