Name _____ Blk/Hr _____

Algebra 1 Semester 1 Exam Review

Multiple Choice. *Identify the choice that best completes the statement or answers the question.*

Ch. 2 - Solving Linear Equations

1 Solve

$\frac{2}{5}z = 98$ (49)

(5/2) (5/2)

A $z = 245$ **B** $z = 39$ **C** $z = 98\frac{2}{5}$ **D** $z = 20$

2 Solve

$36 = 12 - 2y$

$-12 \quad -12$

$\frac{24}{-2} = \frac{-2y}{-2}$

A $y = 24$ **B** $y = 12$ **C** $y = -12$ **D** $y = -24$

3 What is the solution of the equation?

$14 = 5p - 8 - 4p$ $14 = p - 8$

A 22 **B** 6 **C** 14 **D** –22

4 Solve

$45r - 4 = 79r - 72$

$-45r \quad -45r$

$-4 = 34r - 72$

$+72 \quad +72$

$\frac{68}{34} = \frac{34r}{34}$

A $r = 2$ **B** $r = 68$ **C** $r = -68$ **D** $r = -2$

5 How many solutions is there to the equation:

$5z - 8 + 10z = 6 + 15z - 14$ $15z - 8 = 15z - 8$

A No solutions **C** Two solutions

B Infinitely many solutions (Identity) **D** One solution

6 Solve for x.

$4x - z = y$

$+z \quad +z$

$\frac{4x}{4} = \frac{y+z}{4}$

A $x = \frac{y}{4} + z$ **B** $x = \frac{y - z}{4}$ **C** $x = \frac{y + z}{4}$ **D** $x = y + z - 4$

7 Car A travels 171 miles in 5 hours. Car B travels 345 miles in 5 hours. Car C travels 424 miles in 11 hours. Which car has the fastest average speed? $\frac{171\text{mi}}{5\text{hr}} = \frac{34.2\text{mi}}{1\text{hr}}$ $\frac{345\text{mi}}{5\text{hr}} = \frac{69\text{mi}}{1\text{hr}}$ $\frac{424\text{mi}}{11\text{hr}} = \frac{38.5\text{mi}}{1\text{hr}}$

A Same average speeds **B** Car C **C** Car A **D** Car B

8 A car is driving at a speed of 75 mi/h. What is the speed of the car in feet per minute? (1 mi = 5280 feet. 1 hr = 60 min)

A 6,600 ft/min **B** 4,500 ft/min **C** 3,225 ft/min **D** 396,000 ft/min

$\frac{75\text{mi}}{1\text{hr}} \times \frac{5280\text{ft}}{1\text{mi}} \times \frac{1\text{hr}}{60\text{min}} = \frac{396000\text{ft}}{60\text{min}} = \frac{6{,}600\text{ft}}{1\text{min}}$

$\frac{112 g}{16 min} = \frac{}{1 min}$

9 A factory worker can package 112 games in 16 minutes. How many games can he package per minute?

A 96 **B** 14 **C** 7 **D** 6.22

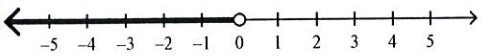
10 School guidelines require that there must be at least 2 chaperones for every 25 students going on a school trip. How many chaperones must there be for 62 students?

A 2 chaperones **B** 4 chaperones **C** 5 chaperones **D** 31 chaperones

Ch. 3 - Linear Inequalities

11 Identify the graph of the inequality from the given description. *x is negative.*

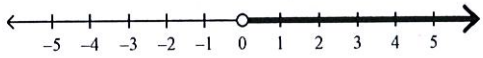
A



B

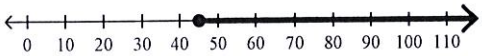
C

D

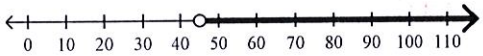


12 Tina can type at least 45 words per minute. Write and graph an inequality to model this situation.

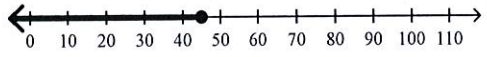
A $t \geq 45$



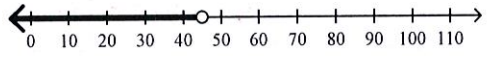
B $t > 45$



C $t \leq 45$



D $t < 45$



13 Suppose you had d dollars in your bank account. You spent \$7 but have at least \$33 left. How much money did you have initially? Write and solve an inequality that represents this situation.

A $d - 7 > 33$; $d > 40$ **C** $d + 7 \geq 33$; $d \geq 47$

B $d + 7 \leq 33$; $d \leq 47$ **D** $d - 7 \geq 33$; $d \geq 40$

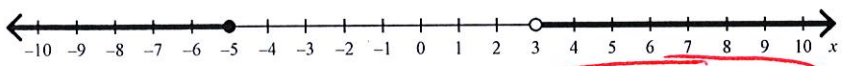
14 Solve the inequality $\frac{a}{-2} < 2$ and graph the solutions.

A $a < 4$ **B** $a < -4$ **C** $a > -4$ **D** $a > 4$

15 Solve $6(w - 10) > 18$

A $w > 3$ **B** $w > 13$ **C** $w > 28$ **D** $w < 28$

16 Write the compound inequality shown by the graph.



A $3 < x \leq -5$ **B** $-5 \leq x < 3$ **C** $x \leq -5$ OR $x > 3$ **D** $x < -5$ OR $x > 3$

17 Fly with Us owns a D.C.10 airplane that has seats for 240 people. The company flies this airplane only if there are at least 100 people on the plane. Write a compound inequality to show the possible number of people in a flight on a D.C.10 with Fly with Us. Let n represent the possible number of people in the flight.

A $100 \le n \le 240$ **B** $n > 100$ or $n < 240$ **C** $100 \ge n \ge 240$ **D** $n \le 240$

18 Solve the compound inequality

$4x - 1 < -13$ or $4x + 10 > 2$

$+1 \quad +1$ $\qquad$ $-10 \quad -10$

$\frac{4x}{4} < \frac{-12}{4}$ $\qquad$ $\frac{4x}{4} > \frac{-8}{4}$

$x < -3 \qquad x > -2$

A $x < -3$ or $x > 3$ **B** $x < -3\frac{1}{2}$ or $x > 3$ **C** $x < -16$ or $x > -12$ **D** $x < -3$ or $x > -2$

19 Solve $|x| = -4$

A $x = 4$ **B** $x = -4$ **C** $x = 4$ and -4 **D** no solution

20 Solve $|2x - 2| = 6$. $\quad 2x - 2 = +6 \qquad 2x - 2 = -6$

A $x = -2, 4$ **B** $x = -7, 7$ **C** $x = -6, 6$ **D** $x = -3, 4$

Ch. 4 - Functions

21 Give the domain and range of the relation. Tell whether the relation is a function.

x	y
0	–3
1	–1
2	2
2	4

A D: {0, 1, 2}; R: {–3, –1, 2, 4}
The relation is a function.

B D: {–3, –1, 2, 4}; R: {0, 1, 2}
The relation is not a function.

C D: {–3, –1, 2, 4}; R: {0, 1, 2}
The relation is a function.

D D: {0, 1, 2}; R: {–3, –1, 2, 4}
The relation is not a function.

22 For $f(x) = -5x + 14$, find $f(x)$ when $x = 3$. $\quad$ Solve $\quad -5(3) + 14$

A 29 **B** 4 **C** –1 **D** –85

23 Write a rule for the situation and decide if it is continuous or discrete.
A movie store sells DVDs for $20 each. What is the cost, C, of n DVDs?

A $C = 20 + n$; discrete
B $C = 20n$; discrete
C $C = 20n$; continuous
D $C = 20 + n$; continuous

24 The function $j(x) = 31x$ represents the number of jumping jacks $j(x)$ you can do in x minutes. How many jumping jacks can you do in 20 minutes? 31(20)

A 151 jumping jacks **B** 211 jumping jacks **C** 620 jumping jacks **D** 1 jumping jacks

25 Which vocabulary words are correctly matched with x-values?

A x: domain, dependent, output **B** x: domain, independent, input **C** x: domain, dependent, input **D** x: range, independent, input

26 Write a function rule for the table.

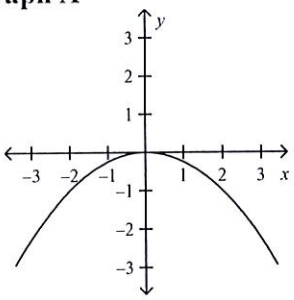
x	y
0	2
1	3
2	6
3	11
4	18

y-intercept

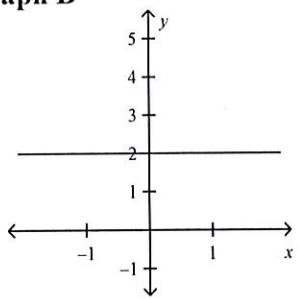
A $y = 3^x$ **B** $y = 2 + 3x$ **C** $y = x^2 + 2$ **D** $y = 3x^2$

27 Identify each graph as being a non-linear function, linear function, or not a function.

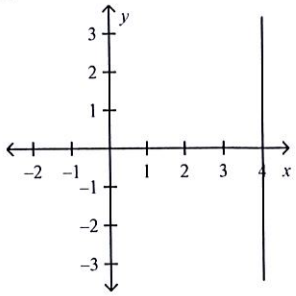
Graph A



Graph B



Graph C



A Graph A: non-linear function; Graph B: linear function; Graph C: not a function

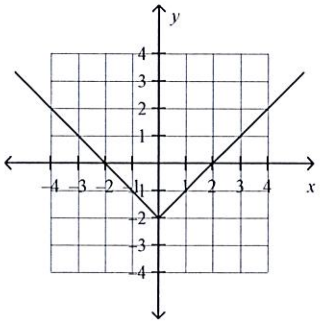
B Graph A: non-linear function; Graph B: not a function; Graph C: not a function

C Graph A: non-linear function; Graph B: linear function; Graph C: linear function

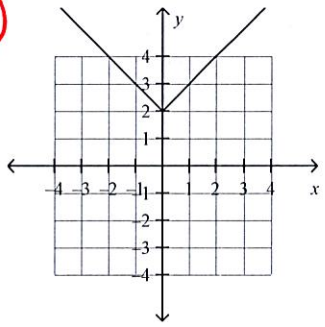
D Graph A: not a function; Graph B: not a function; Graph C: linear function

28 Graph $y = |x| + 2$.

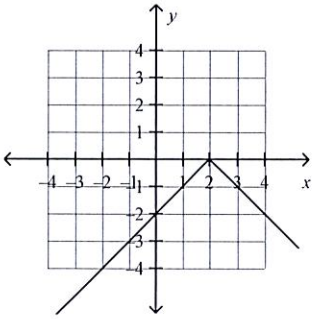
A



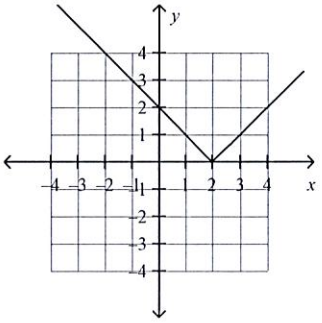
C



B



D

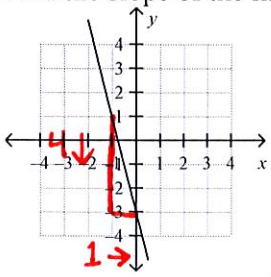


Ch. 5 - Graphing Linear Equations

29 A student finds the slope of the line between (16, 2) and (20, 7). She writes $\frac{2-7}{20-16}$. What mistake did she make?

A She used y-values where she should have used x-values.
B She should have added the values, not subtracted them.
C She did not keep the order of the points the same in numerator and the denominator.
D She mixed up the x- and y-values.

30 Find the slope of the line.



A 4 **B** -4 **C** $-\frac{1}{4}$ **D** $\frac{1}{4}$

31 Find the slope and y-intercept of the line $2x + 10y = -80$. → change to Slope Int. Form

A $\frac{1}{5}$; 8 **B** $-\frac{1}{5}$; $-\frac{1}{8}$ **C** $-\frac{1}{5}$; -8 **D** -5; -8

$-2x \quad -2x$

$\frac{10y}{10} = \frac{-2x}{10} - \frac{80}{10}$

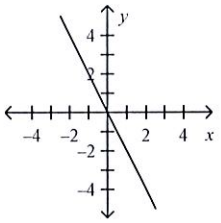
$y = -\frac{1}{5}x - 8$

32 The water level of a river is 34 feet and it is receding (going down) at a rate of 0.5 foot per day. Write an equation in **Slope-Intercept Form** that represents the water level, w, after d days.

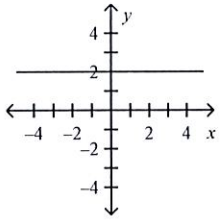
A $w = 34d - 0.5$ **B** $w = -0.5d + 34$ **C** $w = 34d + 0.5$ **D** $w = -0.5d - 34$

33 Graph the equation $y = -2$

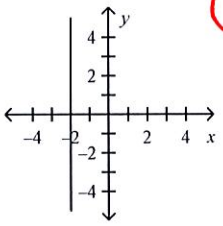
A



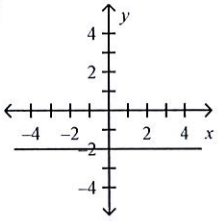
B



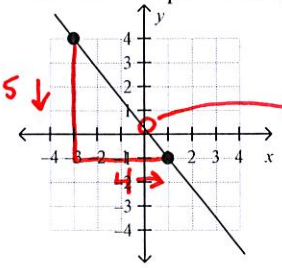
C



D



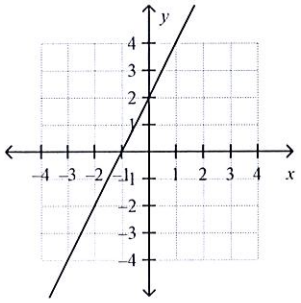
34 Write the slope-intercept form of the equation for the line.



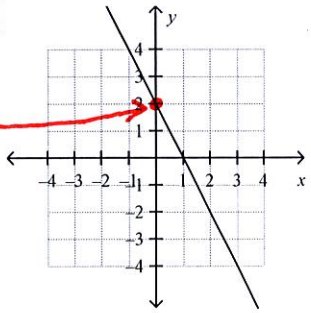
A $y = -\frac{4}{5}x + \frac{1}{4}$ **B** $y = -\frac{5}{4}x + \frac{1}{4}$ **C** $y = -\frac{5}{4}x - \frac{1}{4}$ **D** $y = \frac{1}{4}x - \frac{5}{4}$

35 Graph the function $y = -2x + 2$.

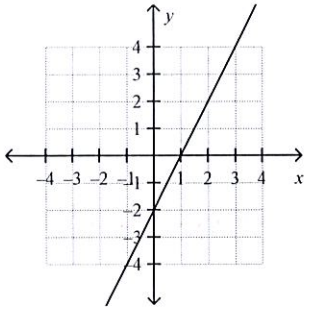
A



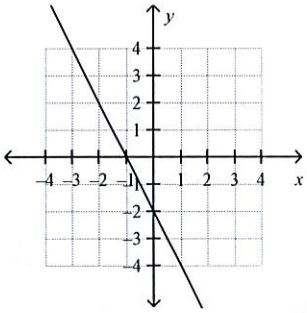
C



B



D



36 Write the equation of the line with a slope of 3 that passes through the point (–2, –4).

A $y = 3x - 2$ **B** $y = 3x - 10$ **C** $y = 3x + 2$ **D** $y = 3x - 4$

1. 3
2. 3
3. 2
4. $y = 3x + 2$

$-4 = 3(-2) + b$
$-4 = -6 + b$
$+6 \quad +6$
$2 = b$

x y

1. old slope
2. new slope
3. solve for y-int. (b)
4. write equation

37 Write an equation in slope-intercept form for the line that passes through (6, 4) and (5, 7).

$m = \frac{7-4}{5-6} = \frac{3}{-1} = -3$ $\quad 4 = -3(6) + b$ $\quad b = 22$

A $y = 3x + 22$ **B** $y = -3x + 22$ **C** $y = -3x + \frac{1}{22}$ **D** $y = -\frac{1}{3}x + 22$

38 Tell whether the lines for each pair of equations are *parallel*, *perpendicular*, or *neither*.

$y = -4x + 2$ $\quad -x + 4y = -12$ → slope int form $\quad \frac{4y}{4} = \frac{x - 12}{4}$ $\quad y = \frac{1}{4}x - 3$

$m = -4$ $\quad m = \frac{1}{4}$

A perpendicular **B** parallel **C** neither

39 Write an equation in slope-intercept form for the line parallel to $y = x + 8$ that passes through the point (8, 8).

A $y = -x + 16$ **B** $y = x + 0$ **C** $y = -x + 8$ **D** $y = x + 0$

$m = 1$ $\quad 8 = 1(8) + b$ $\quad b = 0$

40 The grocery store sells kumquats for \$4.25 a pound and Asian pears for \$2.75 a pound. Write an equation in standard form for the weights of kumquats k and Asian pears p that a customer could buy with \$18.

A $4.25 + 2.75 = k$
B $4.25k + 2.75p = 18$
C $4.25k = 2.75p + 18$
D $4.25p + 2.75k = 18$

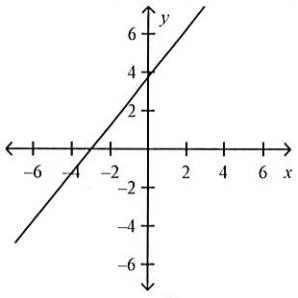
41 Use intercepts to graph the line described by the equation $4x - 4y = -12$.

x	y
0	3
−3	0

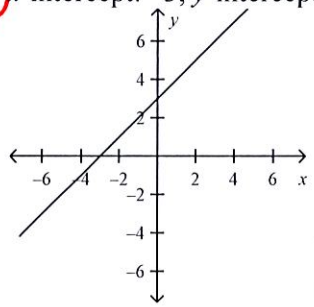
$4(0) - 4y = -12$ $\quad -4y = -12$ $\quad y = 3$

$4x - 4(0) = -12$ $\quad 4x = -12$ $\quad x = -3$

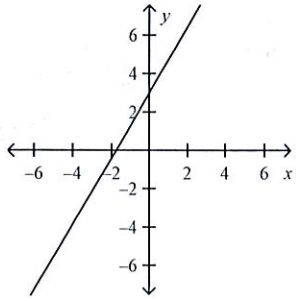
A x-intercept: −3, y-intercept: $\frac{15}{4}$



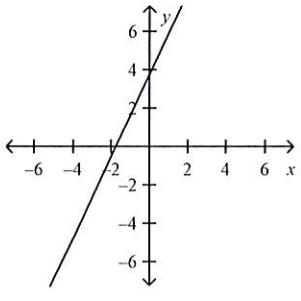
C x-intercept: −3, y-intercept: 3



B x-intercept: $-\frac{7}{4}$, y-intercept: 3



D x-intercept: $-\frac{7}{4}$, y-intercept: $\frac{15}{4}$



Algebra 1 - Semester 1 EXAM Review _____ / 50 = _____%

Short Answer. *Show all of your work for full credit.*

42 There was 5 inches of snow on the ground. Then, it snowed at a rate of 4 inches per hour.

a. (1 pt) Write the equation for the total amount of snow y on the ground after x hours.

$y = 4x + 5$

b. (1 pt) If there is 27 inches of snow on the ground now, how many hours did it snow?

$27 = 4x + 5$, $-5 \quad -5$, $\frac{22}{4} = \frac{4x}{4}$, $x = 5.5$ hrs

43 (2 pts) Solve and graph the compound inequality. $-19 \le 3x - 1 < 17$

$+1 \quad +1 \quad +1$

$\frac{-18}{3} \le \frac{3x}{3} < \frac{18}{3}$

$-6 \le x < 6$

(1 pt)

44

x	y
0	2
1	7
2	12
3	17
4	22

a) (1 pt) Is the relationship in the table linear or non-linear?

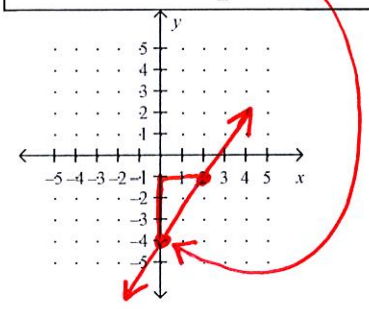
Linear, y increases by 5

b) (1 pt) Write an equation to represent the table.

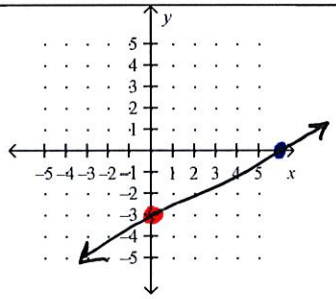
$y = 5x + 2$

45

(1 pt) Use the slope and y-intercept to graph the equation $y = \frac{3}{2}x - 4$.



(1 pt) Find the x- and y-intercepts of $-2x + 4y = -12$. Then graph.



x	y
0	-3
6	0

$-2(0) + 4y = -12$

$\frac{4y}{4} = \frac{-12}{4}$

$y = -3$

$-2x + 4(0) = -12$

$\frac{-2x}{-2} = \frac{-12}{-2}$

$x = 6$