

Algebra 1R REVIEW for MIDTERM 2018

Multiple Choice

Identify the choice that best completes the statement or answers the question.

_____ ① Determine a relationship between the x - and y -values. Write an equation.

x	1	2	3	4
y	4	5	6	7

- a) $y = -x + 3$
 b) $y = x + 4$

- c) $y = x + 3$
 d) $y = 3x + 1$

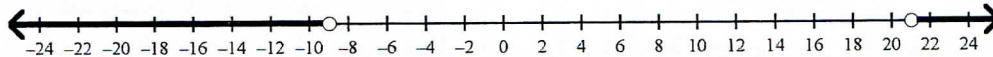
_____ ② Solve the inequality $-2(k+3) < -2k-7$.

- a) $k < \frac{1}{4}$
 b) All real numbers are solutions.

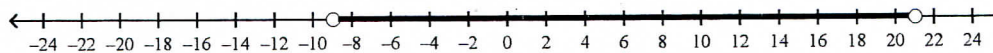
- c) $k < 3\frac{1}{4}$
 d) no solutions

_____ ③ Solve and graph the solutions of $|x-6| - 3 > 12$. Write the solutions as a compound inequality.

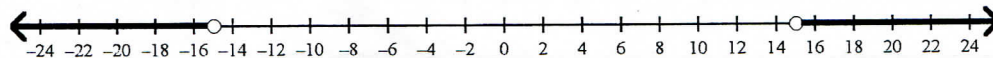
- a) $x < -9$ OR $x > 21$



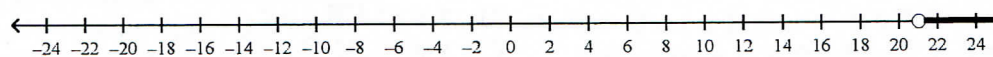
- b) $-9 < x < 21$



- c) $x < -15$ OR $x > 15$



- d) $x > 21$



_____ ④ Evaluate the expression $2m + n$ for $m = 7$ and $n = 9$.

- a) 25
 b) 18

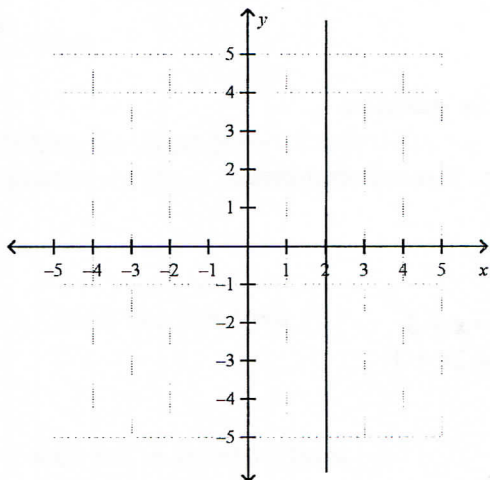
- c) 23
 d) 32

_____ ⑤ Julia wrote 14 letters to friends each month for y months in a row. Write an expression to show how many total letters Julia wrote.

- a) $14y$
 b) $14 + y$

- c) $14 - y$
 d) $\frac{14}{y}$

_____ ⑥ Tell whether the slope of the line is positive, negative, zero, or undefined.

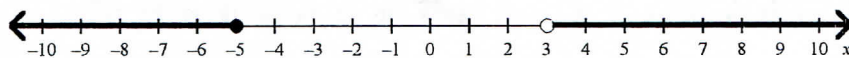


- a) negative
- b) zero
- c) positive
- d) undefined

_____ ⑦ Describe the solutions of $6 + y < 10$ in words.

- a) The value of y is a number less than or equal to 3.
- b) The value of y is a number less than 4.
- c) The value of y is a number equal to 3.
- d) The value of y is a number greater than 4.

_____ ⑧ Write the compound inequality shown by the graph.

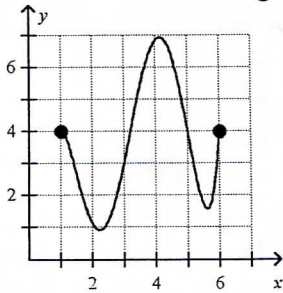


- a) $x < -5$ OR $x > 3$
- b) $x \leq 3$ AND $x > -5$
- c) $x \leq -5$ OR $x > 3$
- d) $x \leq -5$ AND $x > 3$

_____ ⑨ Tell whether the set of ordered pairs $\{(1, 1), (3, 5), (5, 9), (7, 13)\}$ satisfies a linear function. Explain.

- a) No; there is a constant change in x that corresponds to a constant change in y .
- b) Yes; there is no constant change in x that corresponds to a constant change in y .
- c) No; there is no constant change in x that corresponds to a constant change in y .
- d) Yes; there is a constant change in x that corresponds to a constant change in y .

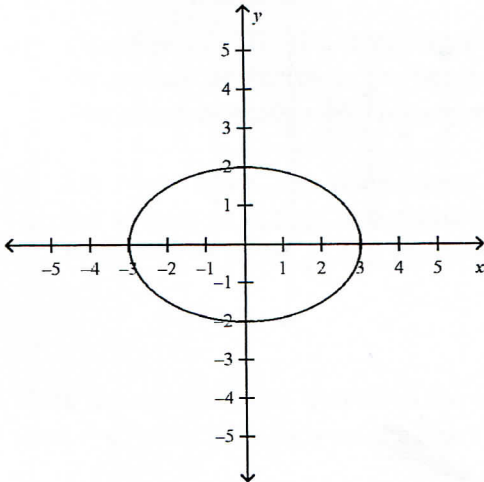
_____ ⑩ Give the domain and range of the relation.



- a) $D: 0 \leq x \leq 7; R: 1 \leq y \leq 7$
 b) $D: 1 \leq x \leq 6; R: 1 \leq y \leq 7$

- c) $D: 1 \leq x \leq 7; R: 1 \leq y \leq 6$
 d) $D: 2 \leq x \leq 6; R: 4 \leq y \leq 7$

_____ ⑪ Give the domain and range of the relation. Tell whether the relation is a function.



- a) $D: -3 \leq x \leq 3; R: -2 \leq y \leq 2$
 The relation is not a function.
 b) $D: -2 \leq x \leq 2; R: -3 \leq y \leq 3$
 The relation is not a function.

- c) $D: -3 \leq x \leq 3; R: -2 \leq y \leq 2$
 The relation is a function.
 d) $D: -2 \leq x \leq 2; R: -3 \leq y \leq 3$
 The relation is a function.

_____ ⑫ The formula $p = nc - e$ gives the profit p when a number of items n are each sold at a cost c and expenses e are subtracted. If $p = 3750$, $n = 3000$, and $e = 900$, what is the value of c ?

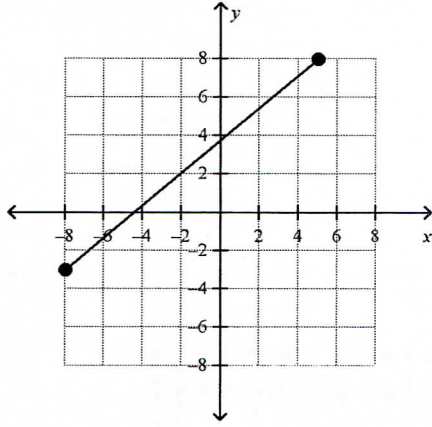
- a) 0.80
 b) 1.25
 c) 1.55
 d) 0.95

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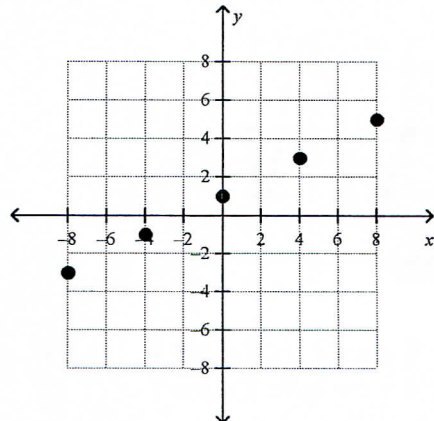
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_____ 13 Graph $-2x + 4y = 4$ for the domain $D: \{-8, -4, 0, 4, 8\}$.

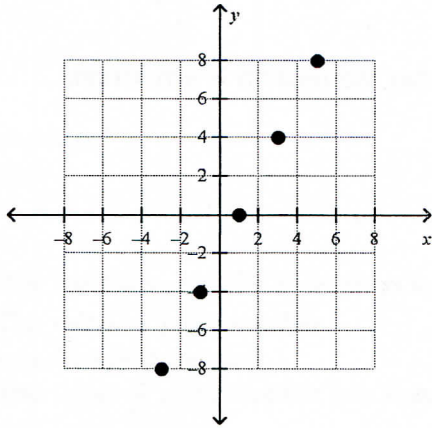
a)



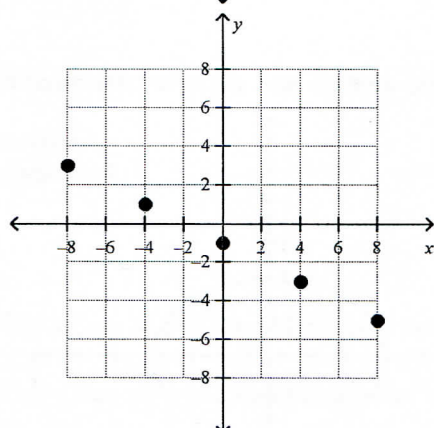
c)



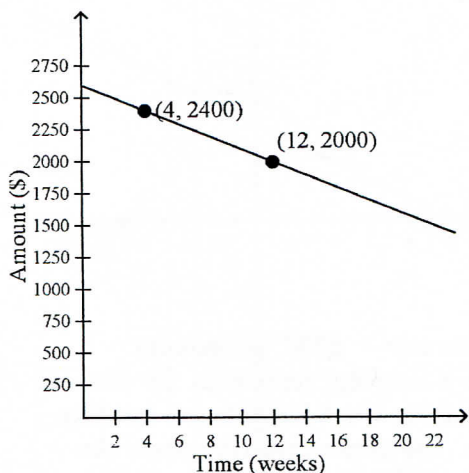
b)



d)



- _____ (14) Tara creates a budget for her weekly expenses. The graph shows how much money is in the account at different times. Find the slope of the line. Then tell what rate the slope represents.



- a) The slope is -50 . The slope means that the amount of money in the account is decreasing at a rate of \$50 every week.
- b) The slope is 50. The slope means that the amount of money in the account is increasing at a rate of \$50 every week.
- c) The slope is -0.02 . The slope means that the amount of money in the account is decreasing at a rate of \$0.02 every week.
- d) The slope is -50 . The slope means that the amount of money in the account is decreasing at a rate of \$50 every 2 weeks.

- _____ (15) Write the equation that describes the line in slope-intercept form.
slope = 4, point $(3, -2)$ is on the line

- a) $y = 4x + 14$
- b) $y = 4x - 14$
- c) $y = 4x + 10$
- d) $y = 4x - 2$

- _____ (16) Write the equation that describes the line with slope = 2 and y -intercept = $\frac{3}{2}$ in slope-intercept form.

- a) $y = \frac{3}{2}x + 2$
- b) $x = 2y + \frac{3}{2}$
- c) $y = 2x + \frac{3}{2}$
- d) $2x + y = \frac{3}{2}$

- _____ (17) An architect built a scale model of a shopping mall. On the model, a circular fountain is 20 inches tall and 22.5 inches in diameter. If the actual fountain is to be 8 feet tall, what is its diameter?

- a) 7.1 ft
- b) 9 ft
- c) 7 ft
- d) 10.5 ft

- _____ 18) Kristi rides her bike to school and has an odometer that measures the distance traveled. She subtracts this distance from the distance to the school and records the distance that remains between her and the school. Find the intercepts. What do the intercepts represent?

Time traveled (min)	Distance remaining (ft)
0	5,000
2	3,750
4	2,500
6	1,250
8	0

- a) x -intercept = 8; y -intercept = 5000
The x -intercept represents the time traveled when Kristi arrived at school. The y -intercept represents the distance remaining when Kristi began her bike ride.
- b) x -intercept = 5000; y -intercept = 8
The x -intercept represents the time traveled when Kristi began her bike ride. The y -intercept represents the distance remaining when Kristi arrived at school.
- c) x -intercept = 5000; y -intercept = 8
The x -intercept represents the distance remaining when Kristi began her bike ride. The y -intercept represents the time traveled when Kristi arrived at school.
- d) x -intercept = 8; y -intercept = 5000
The x -intercept represents the time traveled when Kristi began her bike ride. The y -intercept represents the distance remaining when Kristi arrived at school.

_____ 19) Solve $7|x - 6| = 49$.

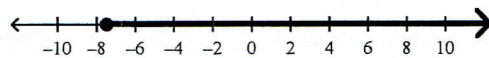
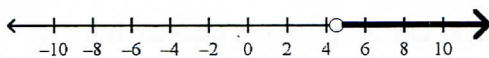
- a) $x = 55$ or $x = -43$
b) $x = 55$
c) $x = 13$ or $x = -1$
d) $x = 13$

_____ 20) Solve the proportion $\frac{5}{6} = \frac{x}{30}$.

- a) $x = 0.03$
b) $x = 36$
c) $x = 26$
d) $x = 25$

_____ 21) Solve the inequality $n + 6 < -1.5$ and graph the solutions.

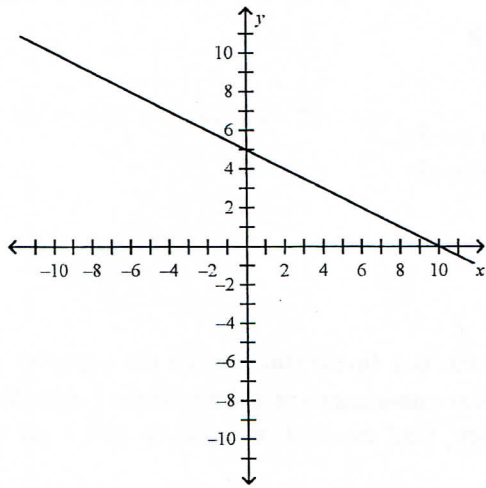
- a) $n < 4.5$
b) $n < -7.5$
c) $n < -7.5$
d) $n < 4.5$



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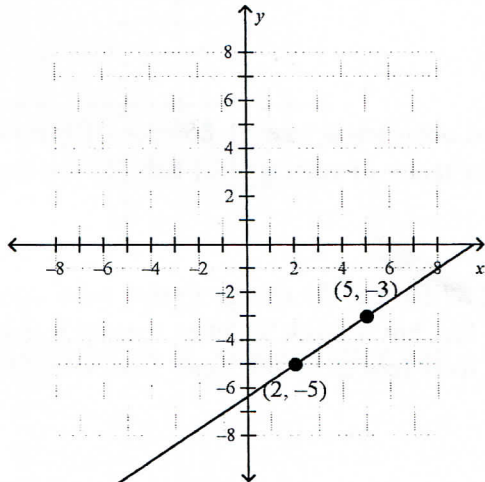
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22 Find the x - and y -intercepts.



- a) x -intercept: 10, y -intercept: 5
b) x -intercept: 5, y -intercept: 10
c) x -intercept: -10, y -intercept: 5
d) x -intercept: 10, y -intercept: -5

23 Find the slope of the line.



- a) $\frac{2}{3}$
b) $-\frac{2}{3}$
c) $-\frac{3}{5}$
d) $\frac{3}{2}$

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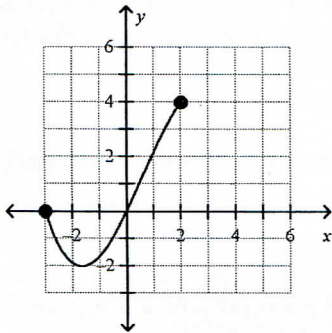
30 Write an equation in slope-intercept form for the line perpendicular to $y = 8x - 9$ that passes through the point $(9, -9)$.

31 Solve $50q - 43 = 52q - 81$.

32 Solve $|6x - 9| + 5 = 2$.

33 Solve $\frac{q}{5} = 41$. Check your answer.

34 Give the domain and range of the relation.



35 Tell whether $(9, 2)$ is a solution of $y < 4x + 1$.

36 Tell whether the ordered pair $(5, -3)$ is a solution of the system $\begin{cases} -3x + 2y = -21 \\ -x - y = -2 \end{cases}$.

37 Juan scored 26 points in the first half of the basketball game, and he scored n points in the second half of the game. Write an expression to determine the number of points he scored in all. Then, find the number of points he scored in all if he scored 18 points in the second half of the game.

- 38 Write the equation $4x + 8y = -24$ in slope-intercept form. Then graph the line described by the equation.

- 39 Solve $\begin{cases} 2x - 5y = -7 \\ 5x - 3y = 11 \end{cases}$ by elimination. Express your answer as an ordered pair.

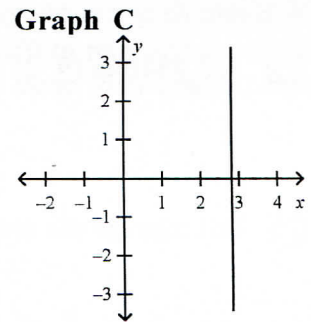
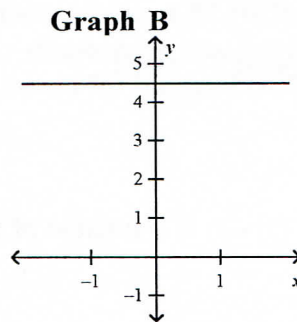
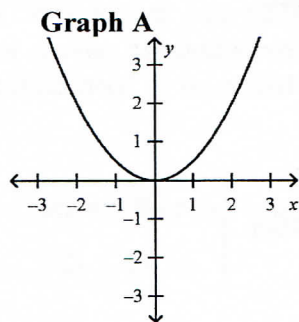
- 40 If $4x = 32$, find the value of $35 - 5x$.

- 41 Give the domain and range of the relation.

x	y
4	9
6	13
0	0
-5	-9

- 42 Solve $43a + 10 - 26a = 27$.

- 43 Identify whether each graph represents a function. If the graph does represent a function, is the function linear?



- 44 Solve the compound inequality $1 < 3x - 2 \leq 10$ and graph the solutions.

- (45) Graph the system of linear equations $\begin{cases} y = 2x + 4 \\ y = 2x - 2 \end{cases}$.
- (46) Identify the lines that are perpendicular:
 $y = 4$; $y = \frac{1}{3}x - 5$; $x = 8$; $y + 5 = -5(x + 1)$
- (47) The Fun Guys game rental store charges an annual fee of \$5 plus \$5.50 per game rented. The Game Bank charges an annual fee of \$17 plus \$2.50 per game. For how many game rentals will the cost be the same at both stores? What is that cost?
- (48) To join the school swim team, swimmers must be able to swim at least 500 yards without stopping. Let n represent the number of yards a swimmer can swim without stopping. Write an inequality describing which values of n will result in a swimmer making the team. Graph the solution.
- (49) Find the slope of the line described by $x - 3y = -6$.
- (50) Devon pays \$24.95 for her roller skates. After that she pays \$3.95 for each visit to the roller rink. What is the greatest number of visits she can afford if the total amount she spends cannot be more than \$76.30?
- (51) Janice is going on vacation and needs to leave her dog at a kennel. Nguyen's Kennel charges \$15 per day plus \$20 for a processing fee. The Pup Palace Kennel charges \$12 per day, and has a \$35 processing fee. After how many days is the Pup Palace Kennel cheaper than Nguyen's Kennel?
- (52) Write an equation in slope-intercept form of the line with slope $-\frac{1}{2}$ that contains the point $(-4, -3)$.

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- 53) The equations of four lines are given. Identify which lines are parallel.

Line 1: $y = 8x - 3$

Line 2: $y - 6 = \frac{1}{8}(x - 4)$

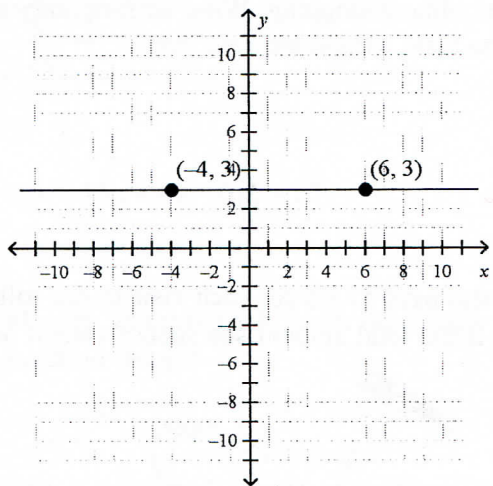
Line 3: $y = 3x + 4$

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

- 54) Find the x - and y -intercepts of $-x + 2y = 8$.

55) $-6 + 4(2x - 5) = 6x + 2$

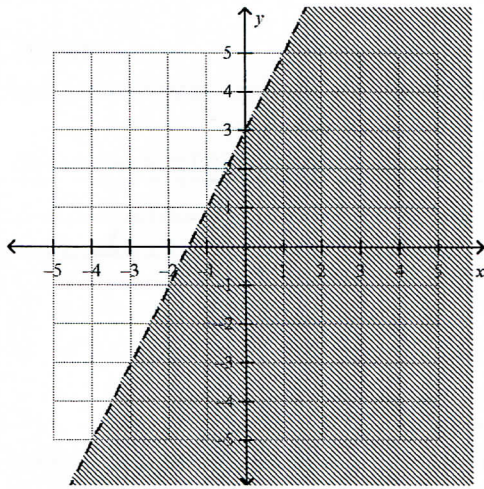
- 56) Find the slope of the line.



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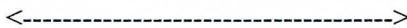
57) Write an inequality to represent the graph.



58) Graph the solutions of the linear inequality $-8x + 2y > -6$.

59) Solve & graph on a number line:

$$5x - 2 > 9x + 18$$



60) Solve & Graph the System of Equations:

$$y < -x + 2$$

$$y \leq \frac{1}{3}x - 3$$

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⑥1 Given the points $(-2,6)$ $(3,-4)$ Find:

1) slope

2) take the slope from #1 and write the equation in slope intercept form

3) Graph this line from #2

4) then put in standard form

5) find the slope of the line perpendicular to #1-3

6) Put in Point slope form

⑥2 Put in Inverse notation:

$$y = 5x - 7$$