

ALGEBRA SUMMER PACKET 2018

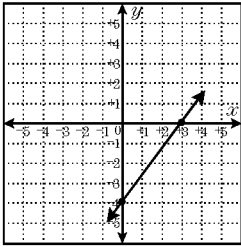
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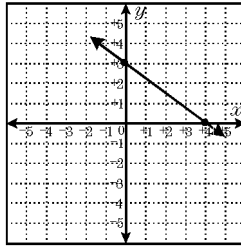
ALL work must be shown on a separate sheet of paper. If no work can be shown, EXPLAIN how you arrived at your answer. This packet will receive a 0 if only answers are circled. Try your best. Remember this is your first grade in ALGEBRA- DUE SEPTEMBER 5, 2018

1. Which of the following is the graph of $3x + 4y = 12$?

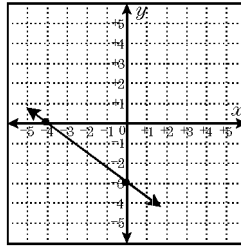
(1)



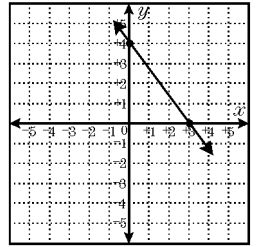
(2)



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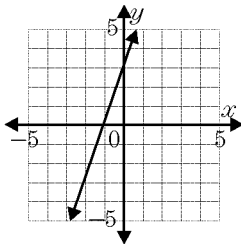


(4)

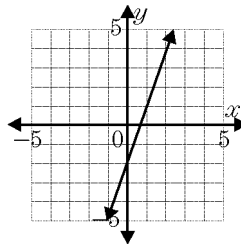


2. Which is the graph of $y = \frac{1}{3}x - 2$?

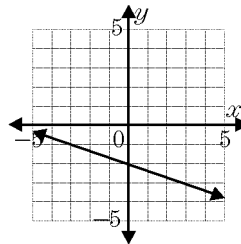
(1)



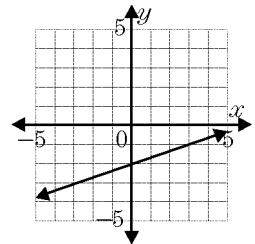
(2)



(3)



(4)



3. Look at the functions.

Function R

x	y
-1	-8
0	-5
1	-2
2	1

Function S

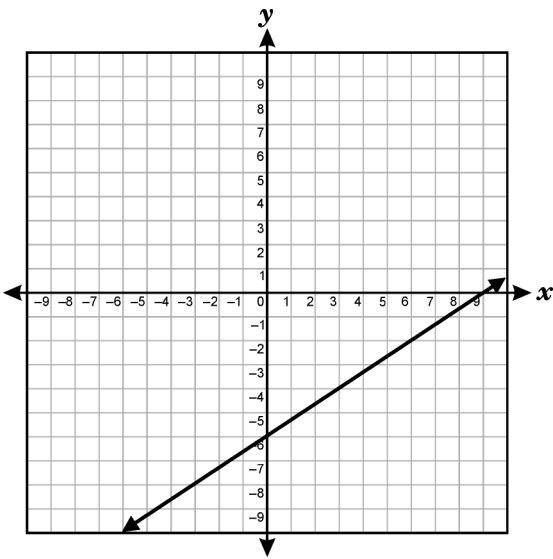
x	y
-3	1
0	7
2	11
3	13

Compare the functions.

- (1) Function R and Function S describe the same function since they both have y -intercept of -5 .
- (2) Function R and Function S describe the same function since they both have slope of 3 .
- (3) Function R describes $y = 3x - 5$ and Function S describes $y = 2x + 7$.
- (4) Function R describes $y = 2x - 7$ and Function S describes $y = 3x + 5$.

4. Look at the functions.

Function L



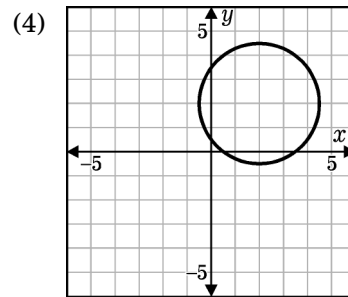
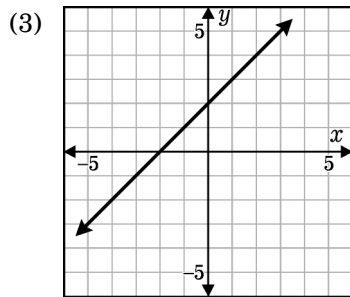
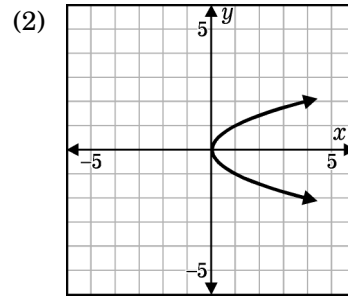
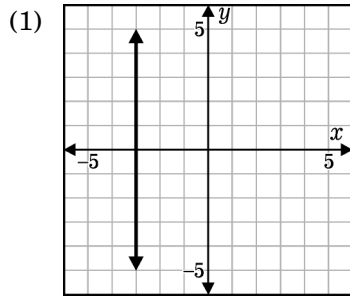
Function M

x	y
-3	4
0	6
3	8
6	10

Compare the functions.

- (1) Function L and Function M describe the same function since they both have y -intercepts of 6.
- (2) Function L and Function M describe the same function since they both have slope of $\frac{2}{3}$.
- (3) Function L has a y -intercept of -6 , Function M has a y -intercept of 6, so the functions are not the same.
- (4) Function L has a slope of $\frac{2}{3}$ but Function Q has a slope of $\frac{3}{2}$, so the functions are not the same.

5. Which of the following is a function?



6. If the output is 17, what is the input?

(1) 10

(2) 9

(3) 7

(4) 8

Input	Output
1	1
2	3
3	5
4	7

7. Which of the following relations is a function?

(1) $\{(2, 2), (0, 7), (-5, 4), (2, -3)\}$

(2) $\{(3, 3), (1, 7), (-9, 3), (1, -1)\}$

(3) $\{(-2, 3), (-1, 4), (0, 5), (1, 6)\}$

(4) $\{(6, 8), (6, 7), (6, 3), (6, 4)\}$

8. The Ace Bowling Lanes charge \$2.25 per game. Rental for bowling shoes is \$1.50 per day. Which formula best describes the cost C in dollars for renting a pair of shoes and bowling G games one day?

- (1) $C = 2.25(G + 1.50)$ (2) $C = 1.50(G + 2.25)$ (3) $C = 1.50G + 2.25G$ (4) $C = 2.25G + 1.50$

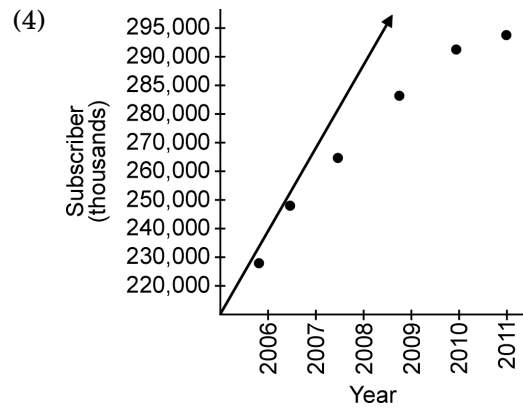
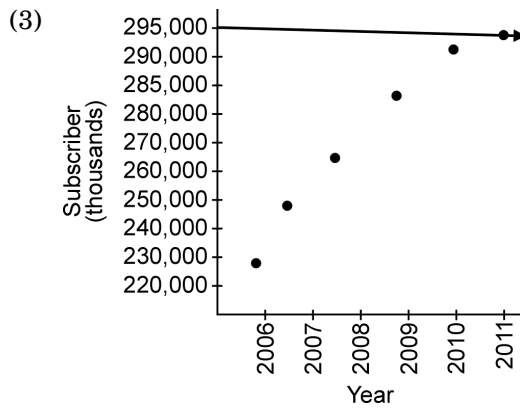
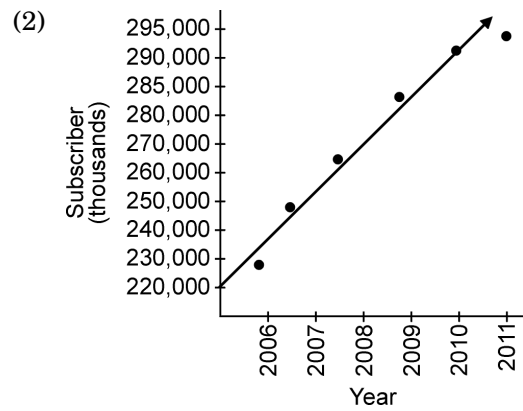
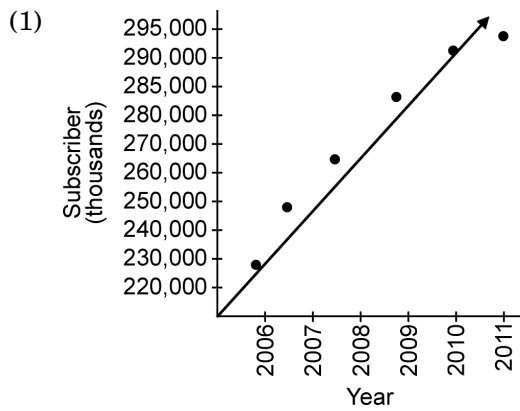
9. More than eighty-five percent of the world owns a mobile device.

**Mobile Device
Subscribers**

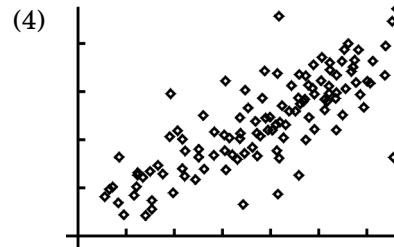
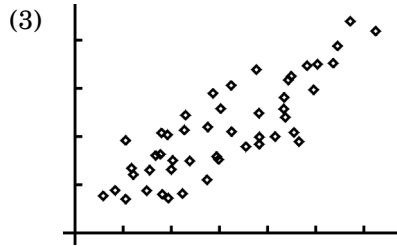
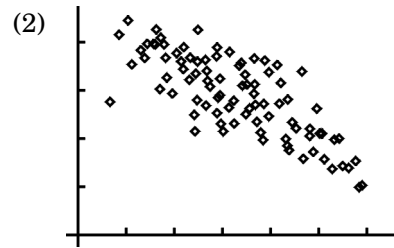
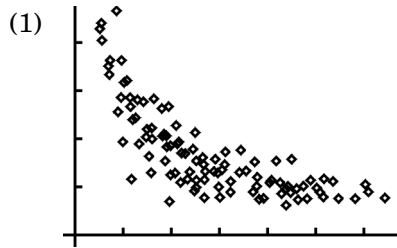
Year	Number Subscribers (1000s)
2006	229,600
2007	249,300
2008	261,300
2009	274,283
2010	285,125
2011	290,304

data retrieved from Intl. Telecom. Union

Which of these *best* represents the data?



10. Which data appears to be non-linear?



11. Mary has twice as many pencils as she has pens. Tom borrows a pen. Now, Mary has ten less pens than pencils. How many pencils does Mary have?

- (1) 21 pencils (2) 20 pencils (3) 19 pencils (4) 18 pencils

12. The width of a rectangle is 14 less than twice the length. The perimeter is 32 cm. What is the area of the rectangle?

- (1) 60 cm^2 (2) 72 cm^2 (3) 84 cm^2 (4) 88 cm^2

13. What is the coefficient of the squared term?

$$5b^2 - 4b + 6$$

(1) 2

(2) 4

(3) 5

(4) 6

14. Simplify: $(9x^2 - 4x + 5) - (2x^2 + 3)$

(1) $7x^2 - 4x + 2$

(2) $7x^2 - 4x + 8$

(3) $11x^2 - 4x + 8$

(4) $11x^2 - 4x + 15$

15. In the equation $S = -\frac{t}{3} - 90$, find the value of t when $S = -100$.

16. If $e(x) = f(x)$, solve: $e(x) = x - 2$
 $f(x) = 4 - x$

(1) (3, 1)

(2) (2, 2)

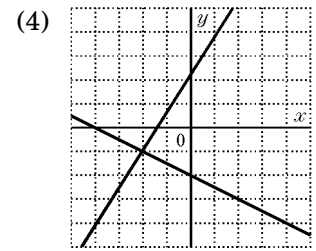
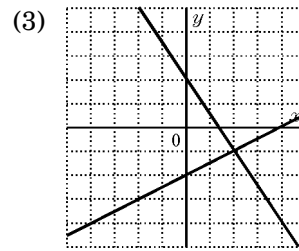
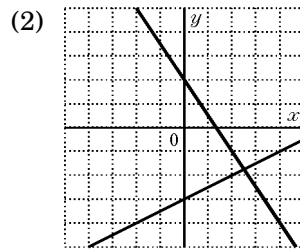
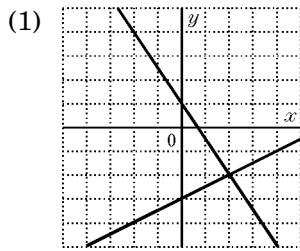
(3) (0, 4)

(4) \emptyset

17. Choose the graph that solves $f(x) = g(x)$.

$$f(x) = \frac{1}{2}x - 3$$

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



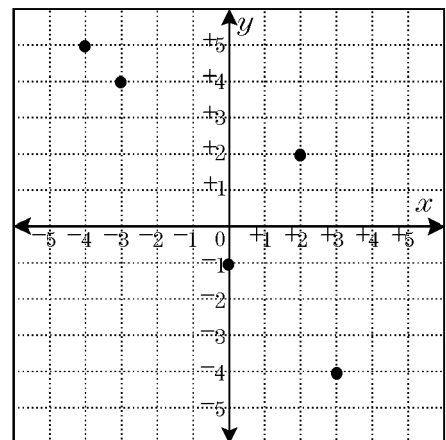
18. What is the range of the graphed relation?

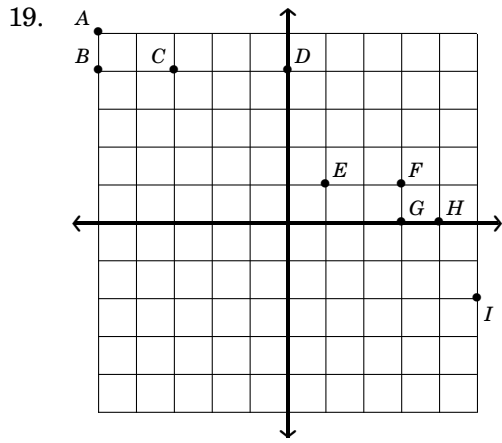
(1) $\{-4, -3, -1, 0, 3\}$

(2) $\{-2, -1, 1, 3, 4\}$

(3) $\{-4, -1, 2, 4, 5\}$

(4) $\{-4, -3, -2, -1, 0, 1, 2, 3, 4, 5\}$





For the graph of the data points, lay your ruler along the best-fit line and draw the your best fit line. Which of the following is the best approximation for the slope of the line?

- (1) -0.5 (2) -2 (3) -1.5 (4) 4

20. Which of the following demonstrates the Distributive Property?

- (1) $2(3 - a) = 6 - 2a$ (2) $-3(a \cdot b) = (-3a)b$
 (3) $-2(a - 3) = -2a - 3$ (4) $c + a + c = a + (c + a)$

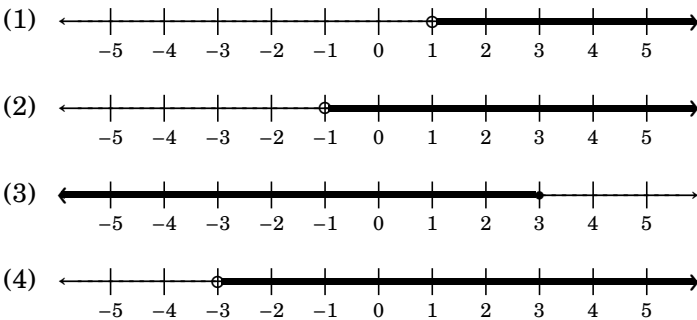
21. Simplify: $2(x + 3) + 4(2x + 9)$

- (1) $10x + 42$ (2) $6x + 12$ (3) $10x + 36$ (4) $8x + 42$

22. A school club sells candy bars for a fundraiser. If the club makes a profit of 25¢ on each candy bar and spends \$25 on advertising, how many candy bars must be sold to make a profit of *at least* \$100?
- (1) 40 candy bars (2) 250 candy bars (3) 500 candy bars (4) 1000 candy bars

23. The ice skating competition is this weekend. The Friday night event draws a crowd of 12,600 people and the Saturday afternoon event draws a crowd of 10,300 people. How many people can attend the Sunday evening event to have an average attendance for the three days of *at most* 11,000?
- (1) 12,200 people (2) 11,600 people (3) 10,900 people (4) 10,100 people

24. Which graph represents the solution to $3x - 2 > 1$?



25. For the 9th grade trip to High Meadows, Ms. Veloz and Ms. Harriott went to the same store to purchase water. Ms. Veloz purchased 18 arizonas and 32 bottles of water, and spent \$19.92. Ms. Veloz purchase 14 arizonas and 26 bottles of wate, and spent \$15.76.

Write a system of equations to represent the cost of an arizona, a , and a bottl e of water, w .

Ariel said that the arizonas might have cost 52 cents and that the bottles of water might have cost 33 cents. Use your system of equations to show Ariel that her prices are *not* possible.

Solve your system of equations to determine the actual cost, *in dollars*, of each arizona and each water bottle.

26. Mimi states that the sum of any rational number and irrational number is an irrational number.

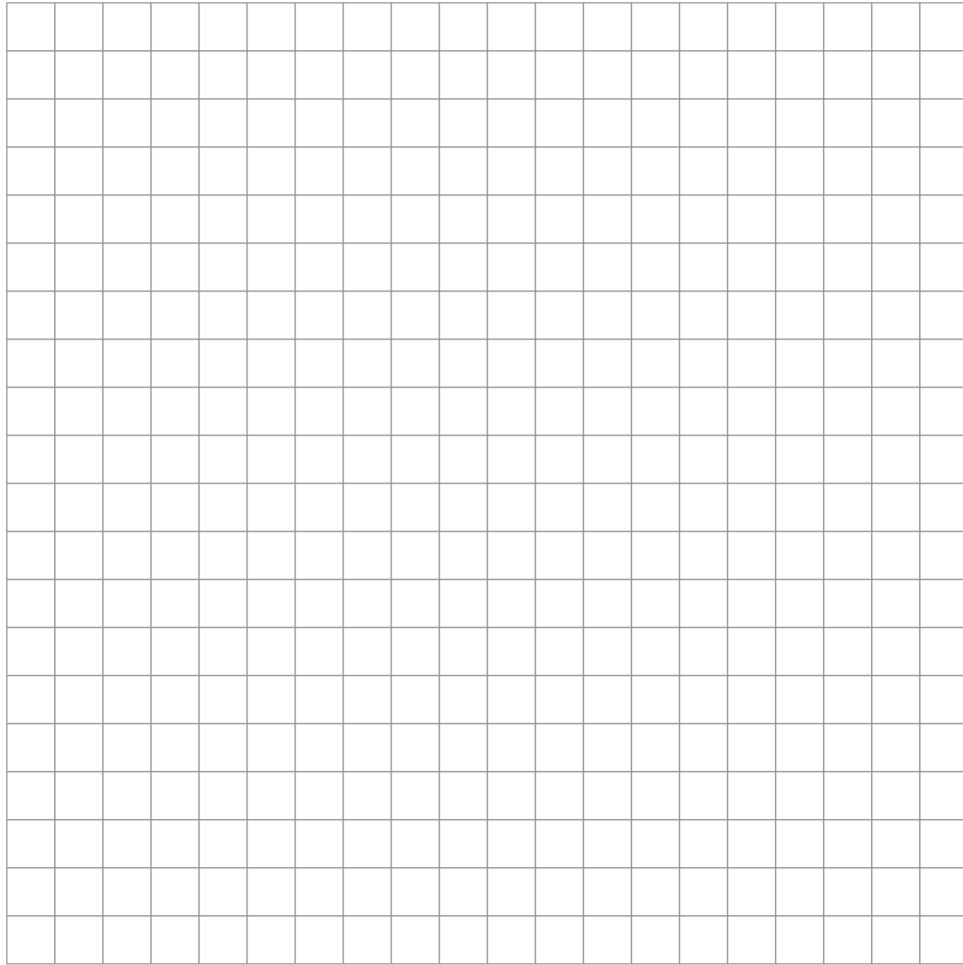
State *one* example that supports Mimi's statement. Justify why your example supports Mimi's statement.

27. Solve the set of equations:

$$\begin{aligned}x - 2y &= 7 \\ 3x + 4y &= -4\end{aligned}$$

28. On the grid below, solve the system of equations graphically for x and y .

$$\begin{aligned}4x - 2y &= 10 \\ y &= -2x - 1\end{aligned}$$



29. The cost of three notebooks and four pencils is \$8.50. The cost of five notebooks and eight pencils is \$14.50. Determine the cost of one notebook and the cost of one pencil.

30. At a movie theater, a cashier sold 250 more adult admission tickets than children's admission tickets. The adult tickets were \$6.00 each and the children's tickets were \$3.50 each. What is the *least* number of each type of ticket that the cashier had to sell for the total receipts to be *at least* \$2,750?

31. Which equation could be used to solve the problem below?

If three times a number is increased by 24, the result is 4 less than seven times the number.

- (1) $3(x + 24) = 7x - 4$ (2) $3x + 24 = 4 - 7x$ (3) $3x + 24 = 7x - 4$ (4) $27x = 7x - 4$