Review for Test #14

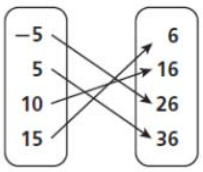
1 Determine if each relation is a function or not. Explain your reason.

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

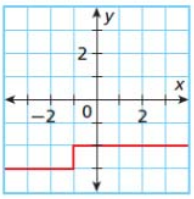
Ⓒ

| $x$ | 3 | 5 | 7 |
|---|---|---|---|
| $y$ | 1 | 15 | 30 |

Ⓑ




Ⓓ




2 Bobbie's dance team is purchasing joggers. The company charges $375 for a onetime set-up fee and $45 for each printed jogger. Write an expression to represent the total cost of $x$ number of joggers for the team?

3 Identify if each table represents a function and why or why not.

| X | Y |
|---|---|
| 16 | -4 |
| 25 | 5 |
| 49 | -7 |
| 49 | 7 |
| 81 | -9 |

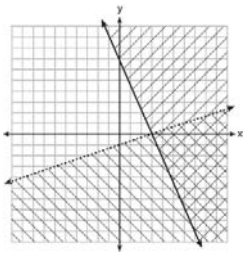
| X | Y |
|---|---|
| -7 | 3 |
| -6 | 1 |
| 3 | -6 |
| 8 | 2 |
| 8 | 8 |

| X | Y |
|---|---|
| -8 | 64 |
| -3 | 9 |
| 3 | 9 |
| 6 | 36 |
| 9 | 81 |

4 A company produces $x$ units of a product per month, where $C(x)$ represents the total cost and $R(x)$ represents the total revenue for the month. The functions are modeled by $C(x) = 125x + 75$ and $R(x) = 2x^2 + 100x - 300$. The profit is the difference between revenue and cost where $P(x) = R(x) - C(x)$. In terms of x, what is the total profit, $P(x)$, for the month?

5 Write a recursively defined function with a first term equal to 6 and a common difference of -3.

6 Name three points that lie in the solution set of the system of inequalities graphed below and 3 points that DON'T.

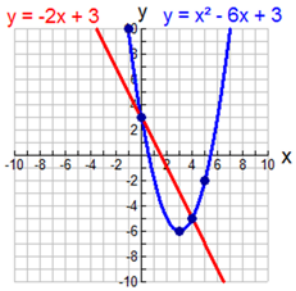


7 Let $f$ be a function such that $f(x) = 3x - 4$ is defined on the domain $4 \le x \le 7$. What is the range of this function?

8 Simplify and write in standard form. $2(x-5)^2 - 4(x+3)$

9 During the 2010 season, football player Mason's earnings, *m*, were 0.5 million dollars more than those of his teammate Frankie's earnings, *f*. The two players earned a total of 7.75 million dollars. Write a system of equations that could be used to determine the amount each player earned, in millions of dollars.

10 Two functions are graphed on the set of axes below. For which values of *x* are the functions equal to each other?




11 Given the graph of the line represented by the equation $f(x) = 5x + b$, if $b$ is decreased by 6 units, the graph of the new line would be shifted 6 units in which direction?

12 Randy has $25 in his purple piggy bank and is putting in $10 every week. Jill has $50 in her red piggy bank and is putting in $5 every week. Each of them plots the progress on a graph with time on the horizontal axis and amount in the jar on the vertical axis. Describe their graphs.

13 The graph shows Denise's distance from home. Describe a possible relationship between her distance and time throughout the day.


14 The cost of a pack of Hershey bar in a vending machine is \$1.50. The cost of a bottle of water in the same machine is \$2.25. Jenny has \$27.00 to spend on chocolate bars and bottles of water for her team and she must buy 5 Hershey bars. If *w* represents the number of bottles of water write an inequality to represent the maximum number of bottles she can buy.

15 A gym charges a one-time joining fee and a monthly charge. The total cost is modeled by the function $C = 465 + 36m$. Describe the meaning of each part of the function?

16 If $f(x) = -x^2 - 2x + 8$ and $g(x) = \frac{1}{2}x + 3$, find the values of *x* when $f(x) = g(x)$, to the nearest tenth.

17 The owner of a landscaping business wants to know how many lawns, on average, his workers mow each day. What would be an appropriate rate to calculate an answer to his question?

18 If $b_1 = 2$ and $b_n = 2 + 5(b_{n-1})^2$, then what is the value of $b_2$?

19 Name 3 points on the graph represented by $y = x^2 - 2x + 5$ and 3 points NOT on that graph.

20 The width of a rectangular patio is 5 feet less than its length, *l*. Write a function to represent the area of a patio, $A(l)$.