

Independent & Dependent Variables

1. A department store had a 20%-off sale on all clothing items. Which statement best represents the functional relationship between the sale price of an article of clothing and the original price?
- F. The original price is dependent on the sale price.
 - G. The sale price is dependent on the original price.
 - H. The sale price and original price are independent of each other.
 - J. The relationship cannot be determined.
2. If y is a function of x in the equation $y = x^2 - 9$, which statement is true?
- A. The independent variable x is equal to 9 less than the square of the dependent variable y .
 - B. The independent variable y is equal to 9 less than the square of the dependent variable x .
 - C. The dependent variable y is equal to 9 less than the square of the independent variable x .
 - D. The dependent variable x is equal to 9 less than the square of the independent variable y .

Functional Relationships

3. Given that y is a function of x , which of the following tables best represents a function?

F.

x	y
-7	12
-3	8.5
0	-1
-3	-8.5
7	-12

H.

x	y
-5	-17
-2	-11
1	-5
2	-3
5	3

G.

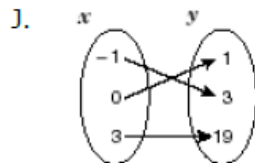
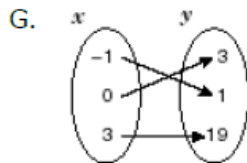
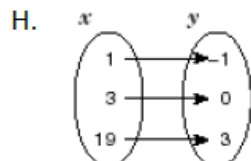
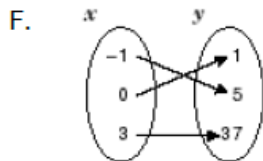
x	y
-2	-14
-2	-8
-2	-5
-2	-1
-2	7

J.

x	y
-8	-7
-5	-2
0	1
-5	4
-8	12

Multiple Representations

4. Which mapping best represents the function $y = 2x^2 + 1$ when the replacement set for x is $\{-1, 0, 3\}$?



6. Students in a science class recorded lengths of a stretched spring, as shown in the table below.

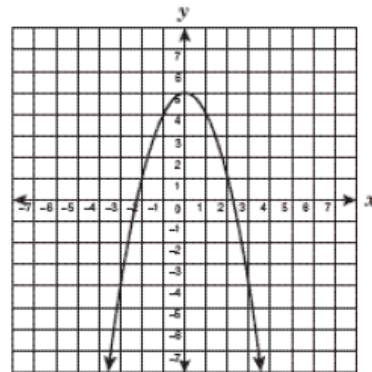
Length of Stretched Spring

Distance Stretched, x (centimeters)	Weight, y (newtons)
0	0
2	10
4	20
7	35
9	45
10	50

Which equation best represents the relationship between the distance stretched, x , and the weight on the spring, y ?

- A. $y = -5x$
 B. $y = \frac{5}{x}$
 C. $y = 5x^2$
 D. $y = 5x$

5. Which quadratic equation best represents the parabola shown below?



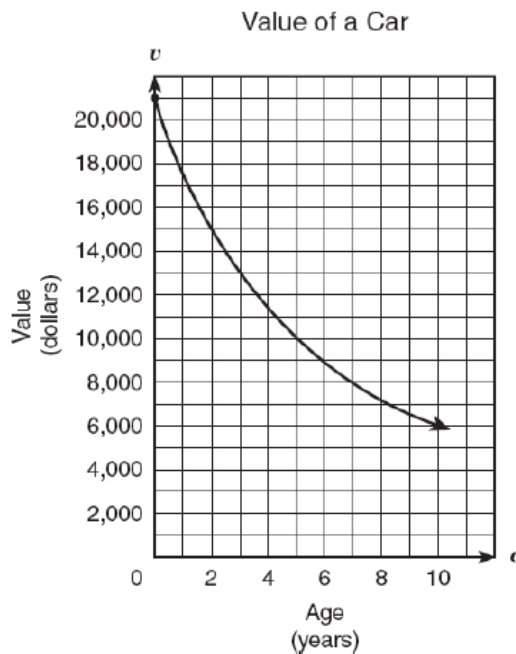
- F. $y = x^2 + x + 5$
 G. $y = x^2 + 5$
 H. $y = -x^2 + 5$
 J. $y = -x^2 + x + 5$

7. A candy company sells chocolate-covered cherries in a box. The empty box weighs 4.2 ounces. Each piece of candy weighs at least 1.8 ounces. Which inequality best describes the total weight in ounces, w , of a box of chocolate-covered cherries in terms of c , the number of candies in the box?

- A. $w \geq 1.8c + 4.2$
 B. $w \geq 1.8c - 4.2$
 C. $w \geq 4.2c + 1.8$
 D. $w \geq 4.2c - 1.8$

Interpreting Graphs

8. The graph below shows the relationship between the value of a car in dollars and the age of the car in years.



According to the graph, which of the following statements appears to be true?

- F. The value of the car decreased by \$1,000 per year.
- G. The value of the car decreased by \$2,000 per year.
- H. The value of the car decreased more from Year 9 to Year 10 than in any other year.
- J. The value of the car decreased more from Year 0 to Year 1 than in any other year.
9. Which is always a correct conclusion about the quantities in the function $y = x + 4$?
- F. The variable x is always 4 more than y .
- G. When the value of x is negative, the value of y is also a negative.
- H. The variable y is always greater than x .
- J. As the value of x increases, the value of y decreases.
10. Southern Phone Company is promoting a new cell phone service plan: a customer can make up to 500 minutes of calls each month for \$39.99. If the number of minutes used in a month exceeds 500, then the function
- $$c = 0.40(m - 500) + 39.99$$
- describes the monthly charge, c , in dollars in terms of m , the total number of minutes used. Which of the following statements best describes this function?
- F. If the total number of minutes used is more than 500, then every minute beyond 500 costs 40 cents.
- G. Every minute used costs 40 cents, regardless of the total number of minutes used.
- H. The first 500 minutes used costs 40 cents each, after which there is an additional charge of \$39.99.
- J. If the total number of minutes used is more than 500, then every minute used costs 40 cents.