

Tests for Higher Standards in Mathematics, Algebra I

A.2

8. What is the value of the expression, "5 decreased by a number divided by 15," if the number is 30?

- A  $-\frac{5}{3}$                       B  $-\frac{9}{32}$   
C 3                              D 9

A.2

9. Evaluate the algebraic expression

$$3t + \frac{3}{4}t - 2k, \text{ if } t = 4 \text{ and } k = -1.$$

- A 13  
B 15  
C 17  
D 19

A.2

10. Evaluate the algebraic expression

$$\frac{x}{7} + 2xy + y, \text{ if } x = 7 \text{ and } y = 3.$$

- A 24  
B 28  
C 46  
D 48

A.2

11. What is the verbal translation of this expression:  $9(a) - 6$

- A 9 less the difference of the quantity  $a$  and 6.  
B The difference of the quantity  $a$  and 6, all multiplied by 9.  
C The difference of 9 and the quantity  $a$ , all multiplied by 6.  
D The product of 9 and the quantity  $a$ , all decreased by 6.

A.3

12. Which property of real numbers justifies the following statement?

$$4 - 2ab = 4 - 2ba$$

- A distributive property  
B commutative property of multiplication  
C associative property of multiplication  
D symmetric property

A.3

13.  $5 \cdot \frac{1}{5} = 1$ , illustrates which property of real numbers?

- A multiplicative identity  
B multiplicative property of zero  
C commutative property of multiplication  
D multiplicative inverse

A.3

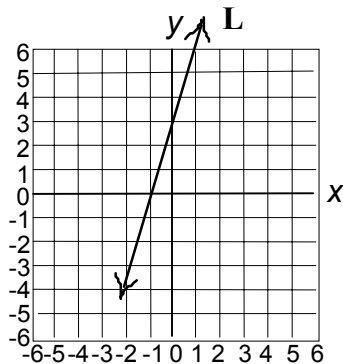
14. The first step in solving  $3x + (x + 2) > -8$  leads to  $(3x + x) + 2 > -8$ . This step is an example of which property?

- A associative property of inequality  
B commutative property of inequality  
C distributive property of inequality  
D addition property of inequality

Tests for Higher Standards in Mathematics, Algebra I

A.8

36. In the graph below, which equation represents the line, L ?



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

A.8

37. The two points  $(0, 1)$  and  $(2, 3)$  determine a line. What is the equation?

- A  $y = -x + 1$
- B  $x = -x - 1$
- C  $y = x + 1$
- D  $y = x - 1$

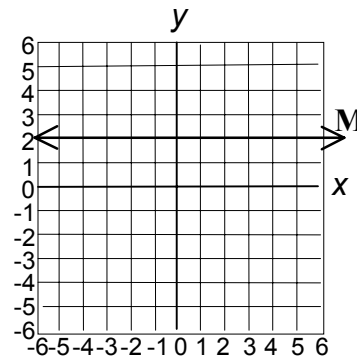
A.8

38. What is the equation for the line with a slope of  $\frac{2}{3}$  which contains the point  $(0, -4)$  ?

- A  $2x - 3y = 4$
- B  $3x - 2y = 12$
- C  $2x - 3y = 12$
- D  $2x - 3y = -12$

A.8

39. In the graph below, which equation represents the line, M?



- A  $x = 2$
- B  $y = 2$
- C  $x = y$
- D  $x + y = 2$

A.9

40. A barnyard has  $c$  number of chickens and  $p$  number of pigs. All you know is that there are 20 animals and a total of 56 feet. How many of each animal is there?

- A 12 chickens and 8 pigs
- B 11 chickens and 9 pigs
- C 3 chickens and 5 pigs
- D 20 chickens and 4 pigs

Tests for Higher Standards in Mathematics, Algebra I

A.15

66. What is the value of the function,  $f(x) = 3x^2 - 10x + 5$ , for  $f(-1)$ ?

- A -2
- B 3
- C 18
- D 24

A.15

67. If  $f(x) = x^2 + 7x + 6$ , which values of  $x$  make  $f(x) = 0$ ?

- A -6 and -1
- B 6 and -1
- C -6 and 1
- D 6 and 1

A.15

68. What are the zeros for the function,  $f(x) = 2x^2 - 8x - 10$ ?

- A  $x = -1$  or  $x = -5$
- B  $x = -1$  or  $x = 5$
- C  $x = 1$  or  $x = -10$
- D  $x = 1$  or  $x = 5$

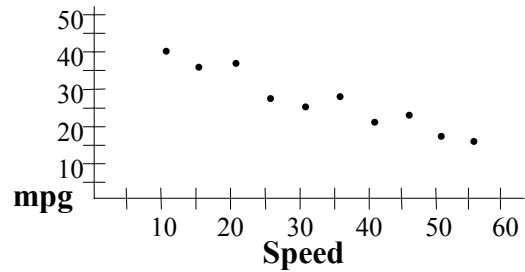
A.15

69. Given the domain  $\{-2, -1, 0, 1, 2, 3\}$ , what is the minimum value of the range for the function  $f(x) = (x - 1)^2$ ?

- A -1
- B 0
- C 1
- D 2

A.16

70. A study was conducted to determine gasoline consumption, in miles per gallon, as a function of speed, in miles per hour, for an automobile. This graph is a scatterplot of the results obtained.



Which equation below best predicts mileage if you know the speed?

- A  $m = 0.5s + 50$
- B  $m = -0.5s + 50$
- C  $m = 0.5s - 50$
- D  $m = -0.5s - 50$

A.16

71. In a certain Canadian lake, the temperature of the water can be predicted at different depths. The formula used is:

$$C - 6.1 = -0.7(d - 15),$$

where  $C$  is the temperature in Celsius and  $d$  is the depth, in meters. What is the predicted temperature at a depth of 20 meters?

- A  $-9.6^\circ\text{C}$
- B  $-2.6^\circ\text{C}$
- C  $2.6^\circ\text{C}$
- D  $9.6^\circ\text{C}$