Lines

**April 2017**

17. In the standard (x,y) coordinate plane, what is the slope of the line given by the equation

4x = 7y + 5?

A. -4/7

B. 4/7

C. 7/4

D. 4

E. 7

**June 2017**

8. Students studying motion observed a cart rolling at a constant rate along a straight line. The table below gives the distance, d feet, the cart was from a reference point at 1-second intervals from t = 0 seconds to t = 5 seconds. Which of the following equations represents this relationship between d and t?

PICTURE

F. d = t + 15

G. d = 3t + 12

H. d = 3t + 15

J. d = 15t + 3

K. d = 33t

**April 2016**

26. Which of the following equations represents the line in the standard (x,y) coordinate plane that passes through (2, -3) and has a slope of -½?

F. y = -2x + 1

G. y = -½ x – 2

H. y = -½ x + 4

J. y = ½x – 4

K. y = 2x – 7

59. In the standard (x, y) coordinate plane below, lines *q*, *r*, and *s* all have an x-intercept of -4. The slope of line *q* is 1, the slope of line *r* is 2/3, and the slope of line *s* is the average of the slopes of lines *q* and *r*. What is the *y*-intercept of line *s*?

A. 5/6

B. 8/3

C. 3

D. 10/3

E. 4

**[PICTURE]**

**June 2016**

10. Zoe programs her calculator to evaluate a linear function, but she doesn’t say what the function is. When 9 is entered, the calculator displays the value 6. When 12 is entered, the calculator displays the value 8. Which of the following expressions represents what the calculator will display when any number, *n*, is entered?

F. (2/3)n

G. (3/2)n

H. n – 3

J. n – 4

K. (3/2n) – (15/2)

16. In the standard (x,y) coordinate plane, what is the slope of the line 11x + 6y = 3?

F. -11

G. -11/6

H. 11/3

J. 3

K. 11

52. What are all real values of *m*, if any, such that any line through the points (3,7) and (3,*m*) will be vertical when graphed in the standard (x,y) coordinate plane?

F. -7

G. 3

H. All real numbers satisfy this condition.

J. All real numbers except 7 satisfy this condition.

K. No real numbers satisfy this condition.

**December 2016**

6. Portions of the graphs represented by the functions -2x + y = 2 and x + y = 5 are shown in the standard (x,y) coordinate plane below. Although only a portion of each graph is shown, the domain of each function is all real numbers. If it can be determined at what point do the graphs intersect? **[PICTURE]**

F. (-1,5)

G. (1,4)

H. (2,5)

J. (4,1)

K. Cannot be determined from the given information

18. In the standard (x, y) coordinate plane, the line represented by which of the following equations goes through (0,7) and is parallel to the line represented by y= -2x – 4?

F. y = -2x – 7

G. y = -2x + 7

H. y = ½x – 7

J. y – ½x + 7

K. y = 7x – 4

21. In the standard (x,y) coordinate plane, the graph of the line 3x – 4y = d passes through the point (-5,6). What is the value of d?

A. -39

B. -9

C. 2

D. 9

E. 38

51. The 3 lines with equations y = 4, x = -3, and y = x, respectively, bound a unique triangular region in the standard (x,y) coordinate plane. Which of the following descriptions is the best classification of this triangle?

A. Equilateral

B. Acute Isosceles

C. Right Isosceles

D. Acute Scalene

E. Right Scalene

**April 2015**

12. The table below gives the total charge to rent a moving truck from each of 2 movers for various numbers of miles. For what number of miles would the total charge for renting a moving truck from Ronnie’s? (Note: There is a linear relationship between the number of miles and the total charge for both Ben’s and Ronnie’s) [PICTURE]

F. 50

G. 60

H. 70

J. 80

K. 90

41. The table below gives the weights, rounded to the nearest pound, at birth an at 1 year for 5 boys. A researcher models these weights as a linear function where the weight at 1 year is dependent on the weight at birth. Among the following models, which is the best?

A. y = 3x

B. y = 4x

C. y = x + 11

D. y = x + 16

E. y = 2x + 10

42. In the standard (x,y) coordinate plane, what is the slope of the line that is perpendicular to the line 8x + 7y = 112?

F. -8/7

G. -7/8

H. -1/8

J. 7/8

K. 8

**June 2015**

14. Which of the following equations gives the relationship between the price in dollars, *c*, and the number of candies, *n*, in a box of candies at Carrie’s Chocolate Shop?

F. c = 0.2n + 0.5

G. c = 0.3n

H. c = 0.5n + 1.5

J. c = n – 3.5

K. c = 1.4n – 5.5

45. During a snowstorm, the relationship between the depth of accumulated snow, y inches, and the elapsed time, x hours, was modeled by the equation 2x – 5y = -5. One of the following graphs in the standard (x,y) coordinate plane models the equation for positive values of x and y. Which one?

A. Image

B. Image

C. Image

D. Image

E. Image

54. In the standard (x,y) coordinate plane below, the line through the points (-2,0) and (0,-4) is graphed. Which of the following values is the slope of any line that is in this plane and is perpendicular to the graphed line? [PICTURE]

F. -2

G. -1

H. -0.5

J. 0.5

K. 1

**December 2015**

13. Students studying motion observed a cart rolling at a constant rate along a straight line. The table below gives the distance, *d* feet, the cart was from a reference point at 1-second intervals from t = 0 seconds to t = 5 seconds. Which of the following equations represents this relationship between *d* and *t*?

A. d = t + 12

B. d = 5t + 7

C. d = 5t + 12

D. d = 12t + 5

E. d = 29t

46. When graphed in the standard (x,y) coordinate plane, the lines x = -3 and y = x – 5 intersect at what point?

F. (2, 2)

G. (2, -5)

H. (-3, 2)

J. (-3,-5)

K. (-3,-8)

47. In the standard (x,y) coordinate plane, which of the following lines is perpendicular to the line 3y = 4x + 2?

A. y = (-4/3)x – 2

B. y = (-3/4)x + 6

C. y = (3/4)x – 2

D. y = (4/3)x + 1

E. 4y = 3x + 5