

1: Order the following from greatest to least.

$$\sqrt{82}, 3\pi, 8.9, 8, \frac{37}{4}, 9.3 \times 10^0$$

- A.  $8, 8.9, \sqrt{82}, 9.3 \times 10^0, 3\pi$
- B.  $\sqrt{82}, 3\pi, 8, 8.9, \frac{37}{4}, 9.3 \times 10^0$
- C.  $9.3 \times 10^0, 3\pi, \frac{37}{4}, \sqrt{82}, 8.9, 8$
- D.  $3\pi, 9.3 \times 10^0, \frac{37}{4}, \sqrt{82}, 8.9, 8$

2: A star's color gives an indication of temperature and age. The chart shows four types of stars and the lowest temperature of each type. List the temperatures in order from lowest to highest.

Type	Lowest Temperature	Color
A	$1.35 \times 10^4$	Blue-White
B	$2.08 \times 10^4$	Blue
G	$9.0 \times 10^3$	Yellow
P	$4.5 \times 10^4$	Blue

- A.  $1.35 \times 10^4, 2.08 \times 10^4, 4.5 \times 10^4, 9.0 \times 10^3$
- B.  $1.35 \times 10^4, 4.5 \times 10^4, 2.08 \times 10^4, 9.0 \times 10^3$
- C.  $9.0 \times 10^3, 1.35 \times 10^4, 2.08 \times 10^4, 4.5 \times 10^4$
- D.  $9.0 \times 10^3, 4.5 \times 10^4, 1.35 \times 10^4, 2.08 \times 10^4,$

3. Which numbers are both less than  $-\frac{5}{6}$ ?

- A.  $-2.1$  and  $-\frac{6}{5}$
- B.  $-\frac{2}{3}$  and  $-\frac{3}{4}$
- C.  $-0.65$  and  $-1.2$
- D.  $-\frac{2}{3}$  and  $-0.8$

4: For what values of  $a$  is  $\frac{1}{a}$  an integer?

- A.  $a = 1, 0$
- B.  $a \leq 1$
- C.  $a = 1, a \neq 0$
- D.  $a > 1$

**5:** Evaluate  $2w + 6y^2$  for  $w = 4$  and  $y = 3$ .

- A. 330
- B. 62
- C. 60
- D. 44

**6:** Simplify  $\frac{2^{-2}3^25}{2^23^{-3}5^2}$

- A.  $\frac{3^5}{5^2}$
- B.  $2^43^25$
- C.  $\frac{3^5}{2^45}$
- D.  $\frac{3^2}{2^45}$

**7:** Simplify:  $\sqrt{8}$

- A.  $\sqrt{2} \times \sqrt{4}$
- B.  $4\sqrt{2}$
- C.  $2\sqrt{2}$
- D.  $2 \times 2 \times 2$

**8:** Simplify the expression using positive exponents.

$$\left(\frac{x^2}{x^{-3}}\right)^4$$

- A.  $x^3$
- B.  $x^5$
- C.  $x^{20}$
- D.  $x^4$

**9:** You won a door prize and are given a choice between two options. A: \$150 invested for 10 years at 4% compounded annually, or B: \$200 invested for 10 years at 3% compounded annually. Which plan is best and what is the final amount of the investment? Investment =  $P(1+r)^t$

- A. A; \$242
- B. B; \$222
- C. A; \$4,338
- D. B; \$268

**10:** Select the set of ordered pairs that represents an exponential function.

- A. (0,0) (-2,2) (1,1) (2,2)
- B. (4,6) (2,3) (6,8) (10,12)
- C. (1,1) (3,9) (2,4) (0,0)
- D. (0,0) (-1, 2) (-2, 3) (2,3)

**11:** Solve  $A = p + prt$  for  $p$

- A.  $\frac{A}{1+rt} = p$
- B.  $p = \frac{A(rt)}{1}$
- C.  $\frac{A}{rt} = p$
- D.  $\frac{rt}{A+1} = p$

**12:** Solve  $v = \pi r^2 h$  for  $r$

- A.  $\sqrt{\frac{v}{\pi h}} = r$
- B.  $\sqrt{\frac{v\pi h}{2}} = r$
- C.  $\sqrt{\frac{vh}{\pi}} = r$
- D.  $r = \sqrt{\frac{v\pi h}{2}}$

**13:** Which of the following pairs of equations can both be written so that  $y$  is a function of  $x$ ?"

- A.  $x = 3$ ;  $y = 2x + 1$
- B.  $y = x^2 + 1$ ;  $x = 0$
- C.  $x^2 + y^2 = 1$ ;  $x = y$
- D.  $3x - 2y = 7$ ;  $y = 2^x$

**14.** The equation of a function is shown.

$$f(x) = |x + 1|$$

What is the domain of  $f(x)$ ?

- A. All real numbers
- B. All real numbers except -1
- C. All real numbers greater than -1
- D. All real numbers between -1 and 1

**15:** Which of the following pairs of equations can both be written so that  $y$  is a function of  $x$ ?

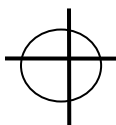
- A.  $y = 3/x$ ;  $x = 3$
- B.  $2x - y = 0$ ;  $x = y^2$
- C.  $y = |4x + 3|$ ;  $y = 3^x$
- D.  $y = \sqrt{x + 3}$ ;  $x^2 + y^2 = 9$

**16:** Which of the following tables, situations, or graphs represent a function?

- A. The age in years of each student in your math class and each student's shoe size.
- B. The number of degrees a person rotates a spigot and the volume of water that comes out of the spigot.
- C.

Hours studied	2	2	3	1
Score on test	85%	92%	90%	70%

D.



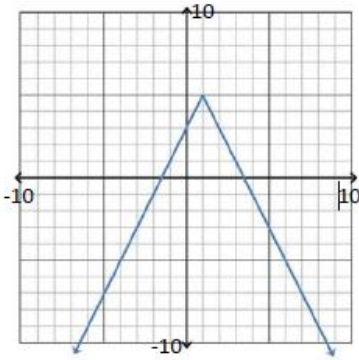
**17:** A function  $f(n) = 60n$  is used to model the distance in miles traveled by a car traveling 60 miles per hour in  $n$  hours. Identify the domain and range of this function. What restrictions on the domain of this function should be considered for the model to correctly reflect the situation?

- A. Domain: hours car traveled  
Range: distance car traveled  
Restriction: hours must be greater than or equal to zero
- B. Domain: distance car traveled  
Range: hours car traveled  
Restriction: distance must be greater than or equal to zero
- C. Domain: hours car traveled  
Range: miles per hour car traveled  
Restriction: hours must be greater than or equal to zero
- D. Domain: distance car traveled  
Range: miles per hour car traveled  
Restriction: distance must be greater than or equal to zero

**18:** What is the domain and range of  $f(x) = \sqrt{x - 5}$ ?

- A. Domain:  $x$  can be all real numbers  
Range:  $f(x)$  can be all real numbers
- B. Domain:  $x = 5$   
Range:  $f(x) = 0$
- C. Domain:  $x \leq 5$   
Range:  $f(x)$  is less than or equal to zero
- D. Domain:  $x \geq 5$   
Range:  $f(x)$  is greater than or equal to zero

19: Below is the graph of  $f(x) = -2|x-1| + 5$ . Determine the domain and range of this function.



- A. Domain:  $x \geq 0$   
Range:  $f(x) \geq 0$
- B. Domain:  $x \leq 5$   
Range:  $f(x) \leq 5$
- C. Domain:  $x$  can be all real numbers  
Range:  $f(x) \leq 5$
- D. Domain:  $x$  can be all real numbers  
Range:  $f(x)$  can be all real numbers

20: According to the USPS government website, dated January 2011, the going rate of a letter depended on its weight in ounces and could be priced as follows:

Up to 1 oz \$.44

Up to 2 oz \$.61

Up to 3 oz \$.78

Up to 3.5 oz \$.95

Weights larger than 3.5 oz, large envelope prices apply.

How much would a letter weighing 2.5 ounces cost?

- A. \$.61
- B. \$.78
- C. \$1.05
- D. \$1.53

21: AT&T's website lists prices for cell phone plans. As of January 2011, the cell phone prices for an individual plan depending on minutes used can be priced as follows:

450 minutes for \$59.99

900 minutes for \$79.99

1350 minutes for \$99.99

2000 minutes for \$119.99

How much would an individual cell phone plan cost if a person wants to make sure they are covered for 1000 minutes?

- A. \$79.99
- B. \$99.99
- C. \$139.98
- D. \$239.97

**22:** Ms. Namtvedt wants to register her math club for the Washington State Mathematics Competition held on March 9, 2011. The fees for competing are as follows:

- \$15 per participant for the first 6 participants
- \$100 for 7 – 10 participants
- \$130 for 11 – 15 participants
- \$115 for 16 – 20 participants
- \$175 for more than 20 participants

How much would math club be charged if registering 14 participants?

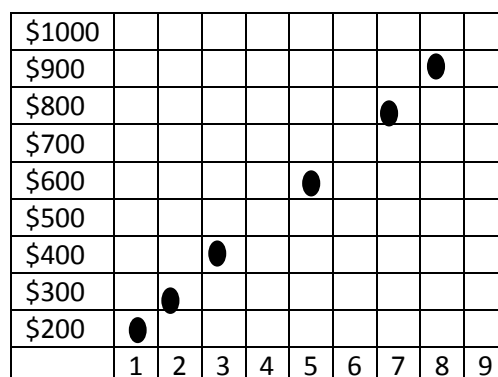
- A. \$78
- B. \$130
- C. \$140
- D. \$210

**23:** Marilyn kept track of how tall her son was every year since he was born. If Marilyn were to write a function relating height,  $h$ , and years,  $y$ , what would be the independent variable?

- A. height,  $h$
- B. years,  $y$
- C. height per year,  $h/y$
- D. year per height,  $y/h$

**24:** Tammy wanted to be a professional basketball player. Ever since she was a child she would keep track of what was the average salary for a female basketball player since the year 1995. If Tammy were to write a function relating salary,  $s$ , and years,  $y$ , what would be the dependent variable?

- A. salary,  $s$
- B. years,  $y$
- C. salary per year,  $s/y$
- D. year per salary,  $y/s$



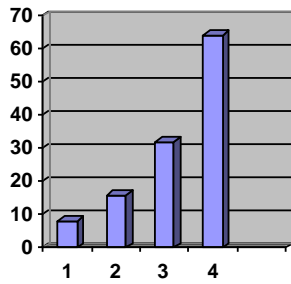
**25:** The chart shows the amount of total salary (commission plus base salary) paid to employees of a car dealership in one week.

<b>Number of cars sold</b>	1	2	3	5	7	8
<b>Total Salary</b>	\$200	\$300	\$400	\$600	\$800	\$900

Which equation best represents total salary ( $T$ ) that an employee makes for selling any number of cars,  $c$ , in a week?

- A.  $T(c) = 100c + 100$
- B.  $T(c) = 100c + 200$
- C.  $T(c) = 100(c + 200)$
- D.  $T(c) = c + 200$

**26:** A population of bacteria doubled every hour, starting with 4 bacteria. The chart below represents the total population,  $p$ , at a given hour,  $t$ .



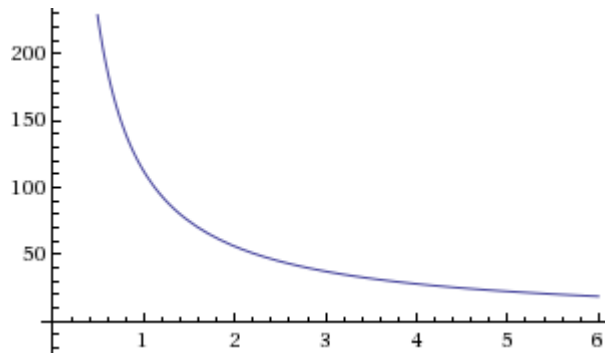
■ Number of bacteria per hour

<i>hour</i>	0	1	2	3
<i>Number of bacteria</i>	4	8	16	32

Which equation best represents the total population ( $P$ ) of bacteria at a given hour,  $t$ .

- A.  $P(t) = 2^t$
- B.  $P(t) = 2^t + 4$
- C.  $P(t) = 4^t$
- D.  $P(t) = 4(2^t)$

**27:** The graph below shows a model for the relationship between the banking angle and the turning radius for a bicycle traveling at a particular speed. For the values shown, the banking angle  $B$  and the turning radius  $r$  can be approximated by an inverse variation.



<b>Radius</b>	2	4	7	8
<b>Banking Angle</b>	$56^\circ$	$28^\circ$	$16^\circ$	$14^\circ$

Which equation best represents the banking angle  $B$  for the turning radius  $r$ ?

- A.  $B(r) = 28r$
- B.  $B(r) = 2r - 28$
- C.  $B(r) = \sqrt{r + 3134}$
- D.  $B(r) = \frac{112}{r}$

28: Which equation listed below best represents the set of data in the table?

$x$	-2	-1	1	3	6
$y$	-4	-1	5	11	20

- A.  $y = 3x + 2$
- B.  $y = -3x + 2$
- C.  $y = x - 2$
- D.  $y = -x - 6$

29: Which function includes all of the ordered pairs in the table?

$x$	-2	0	1	2	3
$f(x)$	5	-3	-1	5	15

- A.  $f(x) = x - 3$
- B.  $f(x) = x + 7$
- C.  $f(x) = 2x^2 - 3$
- D.  $f(x) = \sqrt{x + 27}$

30: Which equation listed below best represents the set of data in the table?

$x$	-3	-1	2	3	5
$y$	-8	-4	2	4	8

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

31: For the function  $f(x) = 3|x + 1|$ , find  $f(-5)$ .

- A. -12
- B. -2.4
- C. 12
- D. 18

32: For the function  $f(x) = 4x - 6$ , find  $f(-2)$ .

- A. -14
- B. -7
- C. -2
- D. 2

33: For the function  $f(x) = \sqrt{x + 3}$ , find  $f(6)$

- A.  $\frac{1}{2}$
- B.  $\sqrt{6}$
- C. 3
- D. 9



**34:** For the function  $f(x) = 3x + 6$ , find  $x$  when  $f(x) = 0$ .

- A. -2
- B. 0
- C. 6
- D. 9

**35:** For the function  $f(x) = 9x - 17$ , find  $x$  when  $f(x) = 1$ .

- A. -17
- B. -8
- C. 1
- D. 2

**36:** For the function  $f(x) = 2x - 9$ , find  $x$  when  $f(x) = 3$ .

- A. -9
- B. -3
- C. 3
- D. 6

**37:**

Solve the equation and chose the correct answer:

$$y - 12 = -4$$

- A.  $y = -16$
- B.  $y = -8$
- C.  $y = 8$
- D.  $y = 16$

**38:**

Solve the inequality and chose the correct answer:

$$x + 5 \geq 8$$

- A.  $x \geq -3$
- B.  $x \geq 3$
- C.  $x \geq 11$
- D.  $x \leq 3$

**39:**

George has eight more than twice the number of marbles you have. Write an expression for the number of marbles George has.

Choose the correct answer:

- A.  $8 - 2n$
- B.  $2n - 8$
- C.  $8 + (-2n)$
- D.  $2n + 8$

40:

Write an absolute value equation for all the numbers 2 units from 7.

Choose the correct answer:

- A.  $|x + 7| = 2$
- B.  $|x + 2| = 7$
- C.  $|x - 7| = 2$
- D.  $|x - 2| = 7$

41:

The equation  $2|x - 1| - 10 = -4$  has two real solutions.

Determine the negative solution of the equation and choose the correct answer.

- A. -1
- B. -2
- C. -3
- D. -4

42:

Solve for x:  $2(x - 3) + 4x = 14 + 2x$

Choose the correct answer:

- A. 2
- B. 5
- C. 4
- D. 6

43:

Solve  $|x - 6| \leq 4$

Choose the correct answer: (and be able to graph the solution on a number line)

- A.  $2 \leq x \leq 10$
- B.  $2 \geq x \geq 10$
- C.  $x \leq 2$  and  $x \leq 10$
- D.  $x \geq 2$  and  $x \geq 10$

44. Which equation represents the line that passes through the points (2, 2) and (4, 1)?

O A.  $y = -2x + 6$

O B.  $y = -\frac{1}{2}x + 3$

O C.  $y = \frac{1}{2}x + 1$

O D.  $y = 2x - 2$

45: Find an equation for a line with y-intercept equal to -2 and slope equal to 3.

A.  $y = -2x + 3$

B.  $y = -2x - 3$

C.  $y = 3x - 2$

D.  $y = 2x - 2$

46: Find an equation for a line with a slope of -1 that goes through the point (-3, 2).

A.  $y = -x + 1$

B.  $y = -x - 1$

C.  $y = 2x - 1$

D.  $y = 3x - 2$

47: Find an equation for a line that goes through the points (1, 8) and (-2, -1)

A.  $y = 3x + 5$

B.  $y = -3x - 5$

C.  $y = \frac{1}{3}x + 7\frac{2}{3}$

D.  $y = -\frac{1}{3}x - 7\frac{2}{3}$

48: Use the equation  $y - 7 = 2(x - 2)$  (without sketching the graph) to describe the graph.

A. the graph has a negative slope and y-intercept of -2

B. the graph has a negative slope and y-intercept of 3

C. the graph has a positive slope and y-intercept of -2

D. the graph has a positive slope and y-intercept of 3

49: Write the equation  $3x + 2y = 5$  in slope-intercept form. Slope Intercept form is: \_\_\_\_\_

50: Write the equation  $y - 1 = 2(x - 2)$  in standard form.

A.  $2x + y = -3$

B.  $-2x + y = 3$

C.  $2x - y = 3$

D.  $y = 2x - 3$

51: Write the equation  $y = \frac{1}{2}x + 5$  in standard form

A.  $-x + 2y = 10$

B.  $x - 2y = -10$

C.  $y - \frac{1}{2}x = 5$

D.  $y - \frac{1}{2}x = 10$

52. Mary is going to deposit an equal amount of money into a checking account each month until she has saved \$500. The amount of money,  $y$ , in the account after  $x$  months can be modeled by the equation  $y = 25x + 100$ .

What does the slope of the graph of the equation represent?

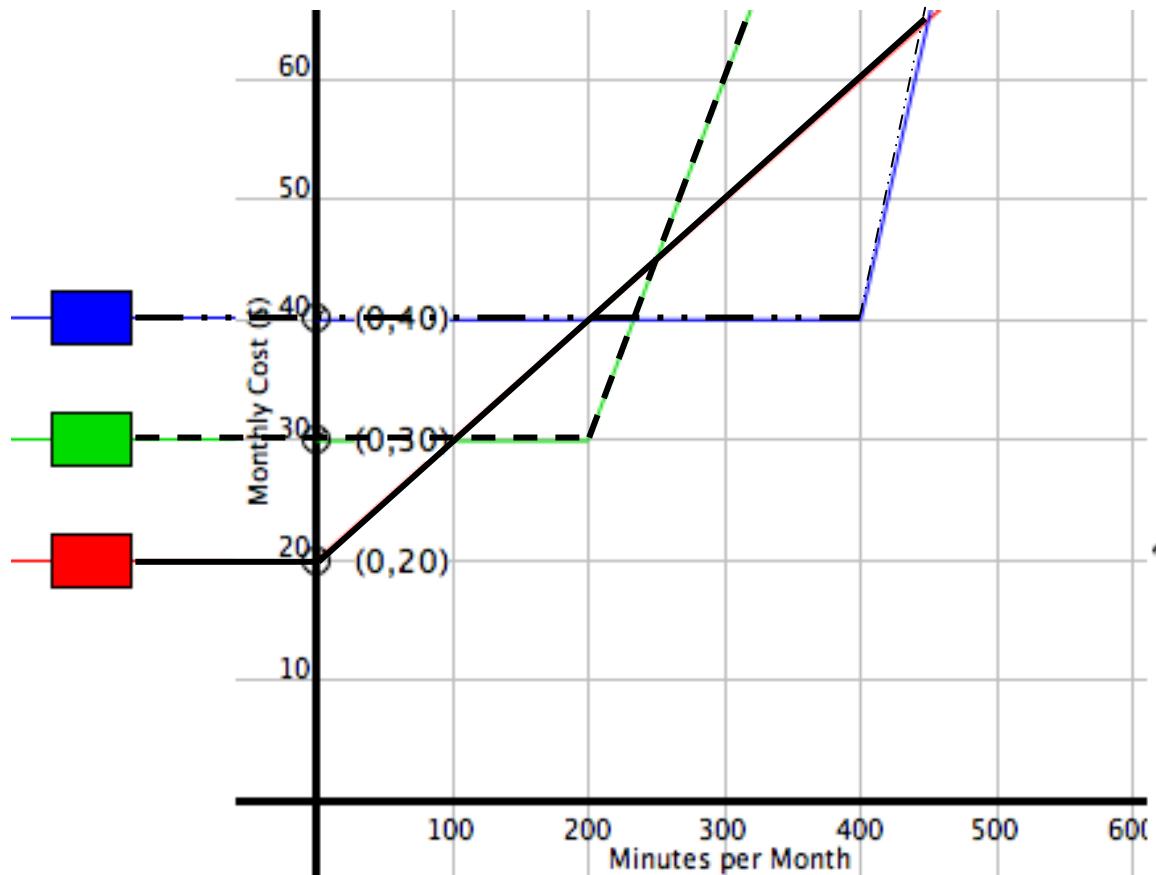
A. The amount of money deposited monthly

B. The amount of money originally in the account

C. The number of months it would take to earn \$100

D. The number of months it would take to reach \$500

53. Refer to the graph below to answer the following questions about three different cell phone plans: Blue, Green, and Red. The graphs relate total minutes per month used for each cell phone plan and monthly cost in dollars.



54: What can be said about the initial cost of each cell phone plan?

- A. All the plans begin with the same cost.
- B. The Red Plan costs the most. (solid line)
- C. The Blue Plan costs the most. (dash, dot, dot, dash)
- D. The Green Plan costs the most. (dash)

55: Which plan costs the least if you have 300 minutes of cell phone use in the month?

- A. Blue Plan (dash, dot, dot, dash)
- B. Green Plan (dash)
- C. Red Plan (solid line)
- D. Cannot be determined

56: What is the least number of minutes you can use and have the Green and Red Plans cost the same amount?

- A. 100 minutes
- B. 200 minutes
- C. 250 minutes
- D. 300 minutes
- E. 400 minutes

57: If someone needed to use their cell for more than 600 minutes every month, which plan would you recommend so they paid the smallest monthly fee?

- A. Blue Plan (dash, dot, dot)
- B. Green Plan (dash)
- C. Red Plan (solid line)
- D. Cannot be determined

58: The sides AB and DC are

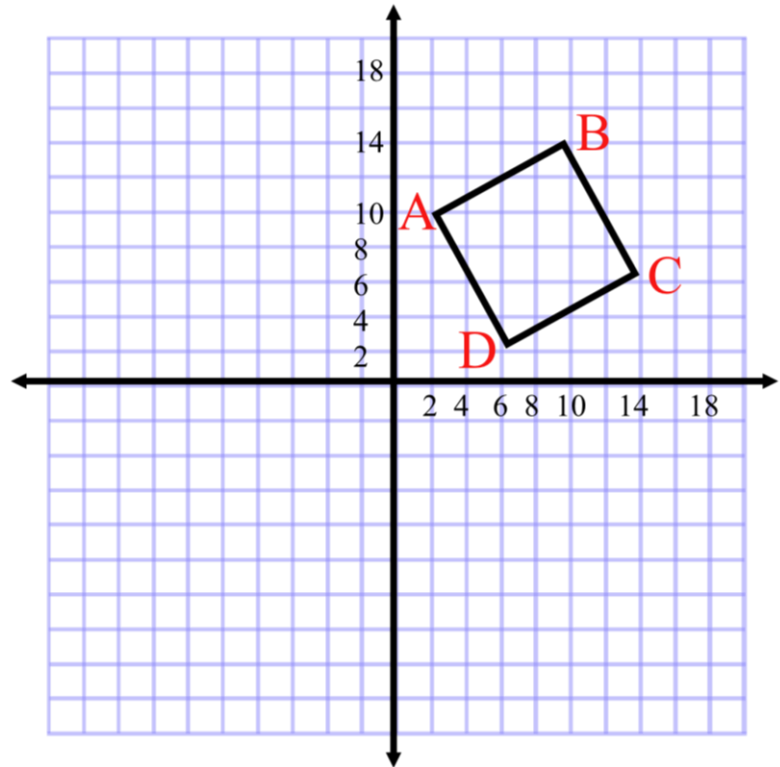
- A. unrelated
- B. parallel
- C. perpendicular
- D. opposite

59: The sides AD and DC are

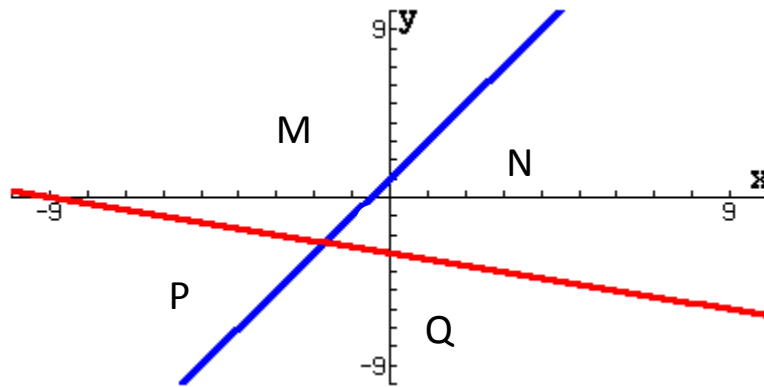
- A. unrelated
- B. parallel
- C. perpendicular
- D. opposite

60: The actual slope of side AB is:

- A.  $\frac{1}{4}$
- B.  $-\frac{1}{4}$
- C.  $\frac{1}{2}$
- D.  $-\frac{1}{2}$
- E. 2
- F. -2



61: Two lines divide the coordinate plane into the four lettered regions shown.



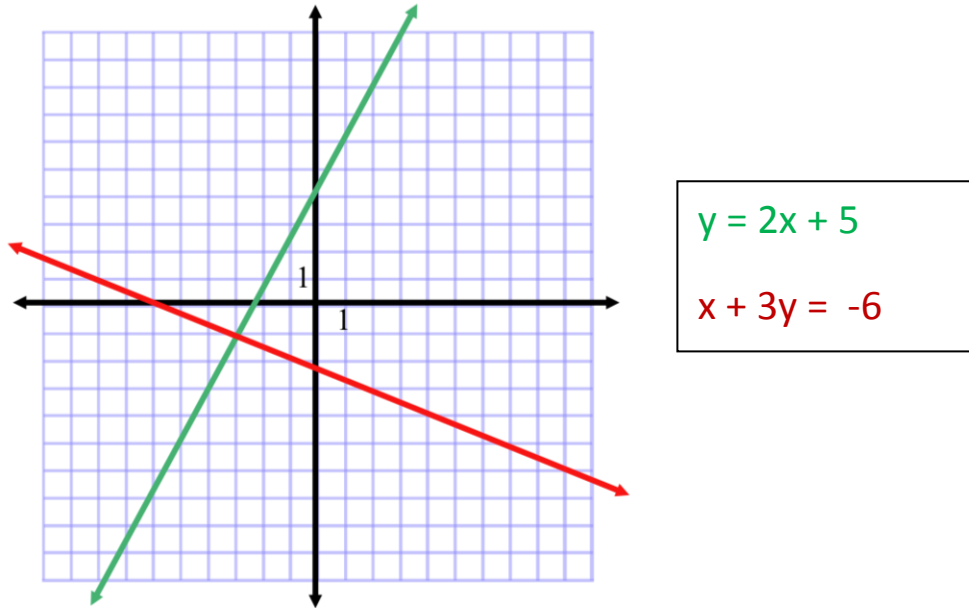
One region represents the solution set to the system of inequalities given.

$$\begin{cases} y \geq 2x + 1 \\ y \leq -\frac{1}{3}x - 3 \end{cases}$$

Which region represents the solution set for the system of inequalities given?

- A. Region M
- B. Region N
- C. Region P
- D. Region Q

62:



What is the solution to the simultaneous linear system pictured above?

- A. (0, 4)
- B. (-2, 0)
- C. (-3, -1)
- D. (-2, 0)

63: Solve the following simultaneous linear equations algebraically:

$$-2x + y = 2 \qquad x + y = -1$$

- A. (-1,-2)
- B. (-1/3,-4/3)
- C. (0,-1)
- D. (-1,0).

64: An academic team is going to a state mathematics competition. There are 30 people going on the trip. There are 5 people who can drive and 2 types of Vehicles; vans and cars. A van seats 8 people, and a car seats 4 people, including drivers. Let  $v$  = number of vans and  $c$  = number of cars.

$$v + c \leq 5$$
$$8v + 4c > 30$$

How many vans and cars does the team need for the trip?

- A. 3 cars and 3 vans
- B. 3 vans and 2 cars
- C. 3 cars and 2 vans
- D. 3 vans and 1 car

**Use the following situation for the next three questions:**

A gas station's 10,000-gallon underground storage tank contains 1,000 gallons of gasoline. Tanker trucks pump gasoline into the tank at a rate of 400 gallons per minute. How long will it take to fill the tank?

65. Find a function that represents this situation, where  $x$  is the time in minutes and  $y$  is the amount of gas in the tank.

- A.  $y = 400x + 10,000$
- B.  $y = 400x + 1,000$
- C.  $y = -400x + 10,000$
- D.  $y = -400x + 9,000$

66: If the flow rate increases from 400 to 500 gallons per minute, how will the graph of the function change?

- A. The  $y$ -intercept will increase
- B. The  $y$ -intercept will decrease
- C. The slope will decrease
- D. The slope will increase

67: If the initial amount of gasoline in the tank changes from 1,000 to 2,000 gallons, how will the graph of the function change?

- E. The  $y$ -intercept will increase
- F. The  $y$ -intercept will decrease
- G. The slope will decrease
- H. The slope will increase

**Refer to the following two functions to answer the next 3 questions.**

Function A:  $y = 3|x|$

Function B:  $y = -\frac{1}{3}|x|$

68: Which statement best describes the transformation of the graph of  $y = |x|$  to the graph of  $y = |x + 2|$ ?

- A. The graph shifts up 2 units.
- B. The graph shifts down 2 units.
- C. The graph shifts left 2 units.
- D. The graph shifts right 2 units.

69: What can be said about the following two functions?

- A. Functions A and B reflect exactly across the  $x$ -axis
- B. Functions A and B reflect exactly across the  $y$ -axis
- C. The functions do not reflect
- D. The functions cannot be graphed



70: Which function's end behavior is negative?

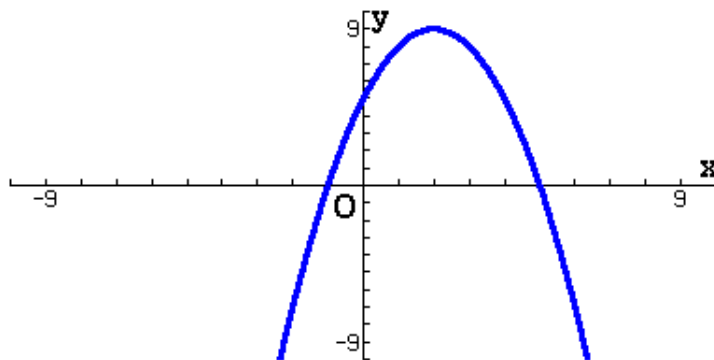
- A. Function A
- B. Function B
- C. Neither
- D. Both

71: Which function has a greater rate of change?

- A. Function A
- B. Function B
- C. Neither
- D. Both

72:

A quadratic function is represented by the given graph.



Which values represent the zeros of the function?

- A.  $x = -5$  or  $x = 1$
- B.  $x = -1$  or  $x = 5$
- C.  $x = 0$  or  $x = 5$
- D.  $x = 2$  or  $x = 9$

73:

What are the solutions to the equation  $x^2 - 4x - 12 = 0$  ?

- A.  $x = -6$  or  $x = 2$
- B.  $x = -4$  or  $x = 3$
- C.  $x = -3$  or  $x = 4$
- D.  $x = -2$  or  $x = 6$

**74:**

A local company has a salary dispute. The workers claim that they are underpaid as compared to the national average. Management claims that they are actually *overpaid* as compared to the national average.

Things to consider when answering the following questions:

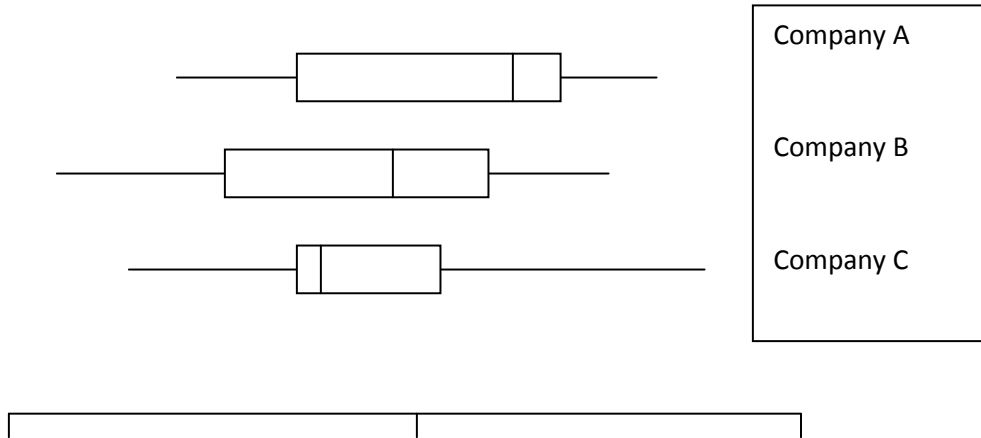
- In this company there are only a few of the workers earning salaries which are quite high; in fact these salaries are way above the national average.
- Both of the claims made can be accurately supported by appropriate summary statistics.

Would it be in the managements' best interest to use the mean or the median when quoting the 'average' salary of the workers at this local company? Explain.


What would be in the workers' best interest when quoting the 'average' of local salaries? Explain.


**75:**

Each box-and-whisker plot shows the prices of used cars (in thousands of dollars) advertised for sale at three different car dealers. If you want to go to the dealer whose prices seem least expensive, which dealer would you go to? Use statistics from the displays to justify your answer.



Explain your answer below:


**Note:** The scale goes from 0 to 10.

**76:**

Calculate the mean and standard deviation of the follow data set:

15, 18, 21, 14, 23, 12, 15, 18, 20, 20, 19, 18

- A. mean = 17.75    standard deviation = 3.19
- B. mean = 17.75    standard deviation = 3.06
- C. mean = 18        standard deviation = 10.18
- D. mean = 18        standard deviation = 3.19

**77:**

Calculate the median of the follow data set:

15, 18, 21, 14, 23, 12, 15, 18, 20, 20, 19, 18

- A. median = 17.75
- B. median = 13.5
- C. median = 15
- D. median = 18

**78:**

Mr. Shapiro found that the amount of time his students spent doing mathematics homework is positively correlated with test grades in his class. He is concluding that doing homework makes his students' test scores higher.

Explain any flaws in Mr. Shapiro's reasoning:

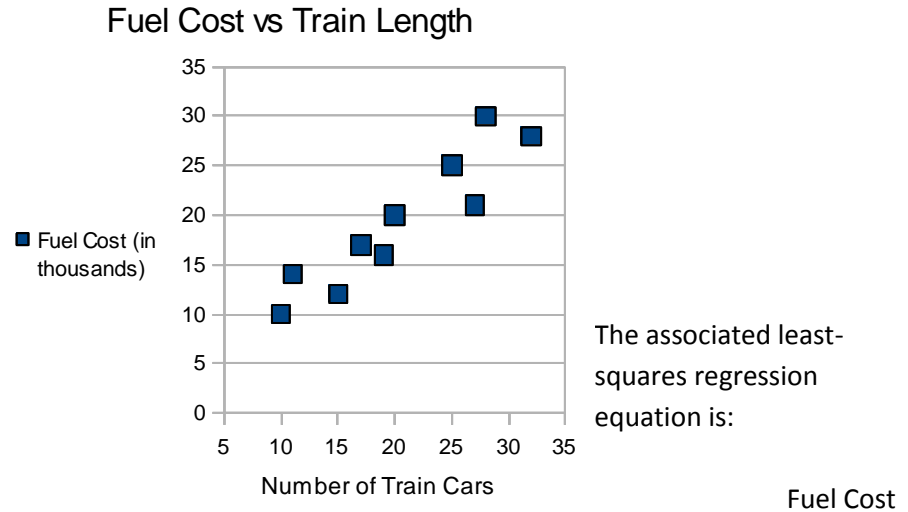

**79:**

Dr. Wilson noticed that as her patients ate more broccoli, their cholesterol levels dropped. She concluded that eating broccoli causes lower cholesterol levels in the blood.

Explain any flaws in Dr. Wilson's conclusion:


**80:**

The following scatter plot shows the total fuel cost for a train run from San Francisco to Seattle for trains with different numbers of cars attached to the lead engine.



$$= 0.84(\text{Number of Cars}) + 2.13$$

Use the above equation to predict the total fuel cost for a train with 50 cars.

Comment on any concerns you may have with using this equation to make such a prediction:


**81:**

Due to budget constraints at a particular company, every employee receives a 2% decrease to their salary.

What impact does this salary decrease have on the mean and on the range of employee salaries at the company?

- A. The mean and range both decrease.
- B. The mean and range do not change.
- C. The mean does not change but the range decreases.
- D. The mean decreases but the range does not change.

**82:**

At a particular company, every employee receives a 4% cost-of-living increase to their salary.

What impact does this cost-of-living increase have on the mean and on the range of employee salaries at this company?

- A. The mean increases but the range does not change.
- B. The mean does not change but the range increases.
- C. The mean and range both increase.
- D. The mean and range do not change.

**83:**

Suppose that a distribution of a set of numbers has a mean 20 and a standard deviation of 5. If 2 is added to each score, what will the new mean and standard deviation of this set of numbers?

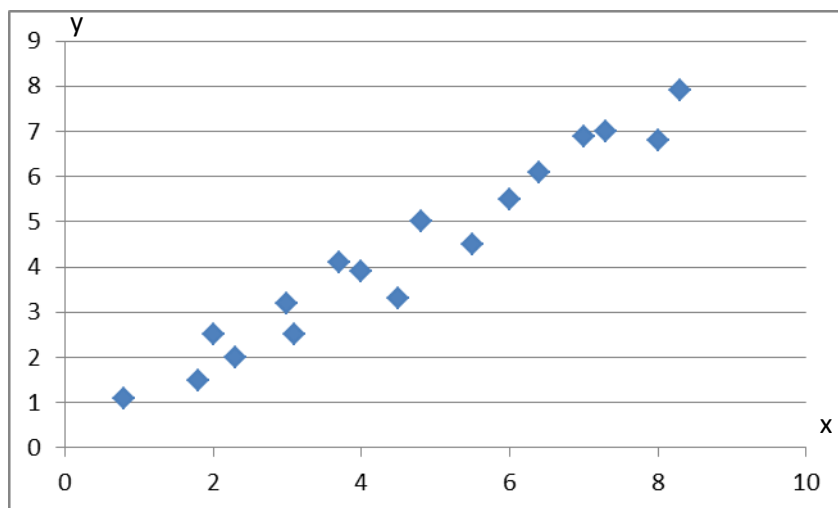
- |                          | <u>mean</u> | <u>standard deviation</u> |
|--------------------------|-------------|---------------------------|
| <input type="radio"/> A. | 20          | 7                         |
| <input type="radio"/> B. | 20          | 5                         |
| <input type="radio"/> C. | 22          | 5                         |
| <input type="radio"/> D. | 22          | 7                         |

**84:**

Suppose that a distribution of a set of numbers has a mean 20 and a standard deviation of 5. If 2 is multiplied to each score, what will the new mean and standard deviation of this set of numbers?

- |                          | <u>mean</u> | <u>standard deviation</u> |
|--------------------------|-------------|---------------------------|
| <input type="radio"/> A. | 20          | 10                        |
| <input type="radio"/> B. | 20          | 5                         |
| <input type="radio"/> C. | 40          | 5                         |
| <input type="radio"/> D. | 40          | 10                        |

85. A scatterplot is shown.



Which statement describes the correlation of the data graphed in the scatterplot?

- A. Strong negative
- B. Strong positive
- C. Weak negative
- D. Weak positive

**86:** Write a recursive formula for the arithmetic sequence 5, 9, 13, 17...

What is the slope of the line that contains these points. How is the slope related to the sequence?

- A.  $a_n = a_{n-1} + 4$ ;  $a_1 = 5$ ,  $m=4$ , linear function
- B.  $a_n = a_{n-5} + 1$ ;  $a_1 = 1$ ,  $m=4$ , quadratic function
- C.  $a_n = a_{n-1} + 4$ ;  $a_1 = 5$ ,  $m=5$ , quadratic function
- D.  $a_{n-1} = a_n + 4$ ;  $a_1 = 5$ ,  $m=1$ , linear function

**87:** Given the recursive function  $a_n = a_{n-1} + 5$  with  $a_1 = 1$ , what are the values at  $a_2$ ,  $a_3$

- A. 5, 10
- B. 2, 6
- C. 6, 11
- D. 1, 6

**88:** Write the recursive formula for the geometric sequence 5, 10, 20, 40 and determine the 20<sup>th</sup> term.

- A.  $a_n = 5 \times 2^{n-1}$ , 2,621,440
- B.  $a_{n+1} = 2a_n$ , 2,621,440
- C.  $a_n = 5 \times 2^{n-1}$ , 5,242,880
- D.  $a_{n+1} = 2a_n$ , 5,242,880