

Name: \_\_\_\_\_

Assignment: MM ALGEBRA ASSIGNMENT 7

1 Sarah earns \$400 per week and spends 15% of her earnings on transportation. How much does Sarah spend on transportation every week?

- 1 \$80
- 2 \$75
- 3 \$60
- 4 \$55

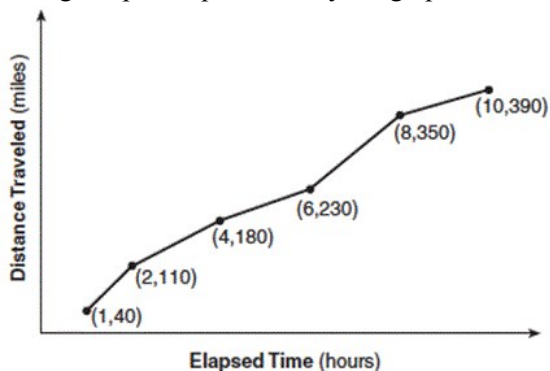
2 The table below represents the function  $F$ .

$x$	3	4	6	7	8
$F(x)$	9	17	65	129	257

The equation that represents this function is

- 1  $F(x) = 3^x$
- 2  $F(x) = 3x$
- 3  $F(x) = 2^x + 1$
- 4  $F(x) = 2x + 3$

3 The Jamison family kept a log of the distance they traveled during a trip, as represented by the graph below.



During which interval was their average speed the greatest?

- 1 the first hour to the second hour
- 2 the second hour to the fourth hour
- 3 the sixth hour to the eighth hour
- 4 the eighth hour to the tenth hour

Class/Period: \_\_\_\_\_

Teacher: Villegas

4 Seventy-five 6th-grade students chose to watch a movie on the last day of school. This is 25% of the 6th-grade class. How many total students are in the 6th grade?

- 1 100
- 2 200
- 3 300
- 4 400

5 A satellite television company charges a one-time installation fee and a monthly service charge. The total cost is modeled by the function  $y = 40 + 90x$ . Which statement represents the meaning of each part of the function?

- 1  $y$  is the total cost,  $x$  is the number of months of service, \$90 is the installation fee, and \$40 is the service charge per month.
- 2  $y$  is the total cost,  $x$  is the number of months of service, \$40 is the installation fee, and \$90 is the service charge per month.
- 3  $x$  is the total cost,  $y$  is the number of months of service, \$40 is the installation fee, and \$90 is the service charge per month.
- 4  $x$  is the total cost,  $y$  is the number of months of service, \$90 is the installation fee, and \$40 is the service charge per month.

- 6 Isaiah collects data from two different companies, each with four employees. The results of the study, based on each worker's age and salary, are listed in the tables below.

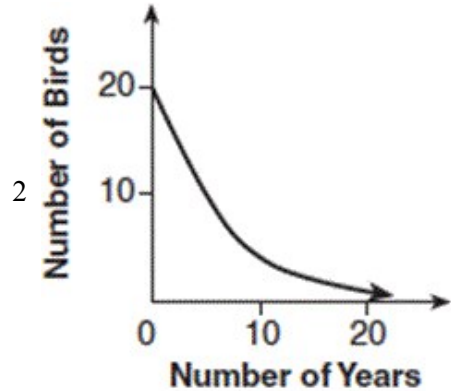
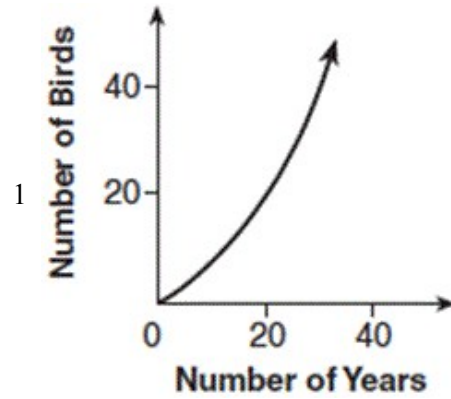
Company 1		Company 2	
Worker's Age in Years	Salary in Dollars	Worker's Age in Years	Salary in Dollars
25	30,000	25	29,000
27	32,000	28	35,500
28	35,000	29	37,000
33	38,000	31	65,000

Which statement is true about these data?

- 1 The median salaries in both companies are greater than \$37,000.
  - 2 The mean salary in company 1 is greater than the mean salary in company 2.
  - 3 The salary range in company 2 is greater than the salary range in company 1.
  - 4 The mean age of workers at company 1 is greater than the mean age of workers at company 2.
- 7 Every five years, the population of a certain town is recorded. In 1990, the town had a population of 12,000. From 1990 to 1995, the population increased by 20%. From 1995 to 2000, the population decreased by 5%. What was the town's population in 2000?

- 1 1,680
- 2 13,680
- 3 13,800
- 4 15,120

- 8 A population that initially has 20 birds approximately doubles every 10 years. Which graph represents this population growth?



- 9 If the pattern below continues, which equation(s) is a recursive formula that represents the number of squares in this sequence?



Design 1



Design 2



Design 3



Design 4

- 1  $y = 2x + 1$
- 2  $y = 2x + 3$
- 3  $a_1 = 3$
- $a_n = a_{n-1} + 2$
- 4  $a_1 = 1$
- $a_n = a_{n-1} + 2$

- 10 The table below shows the average diameter of a pupil in a person's eye as he or she grows older.

Age (years)	Average Pupil Diameter (mm)
20	4.7
30	4.3
40	3.9
50	3.5
60	3.1
70	2.7
80	2.3

What is the average rate of change, in millimeters per year, of a person's pupil diameter from age 20 to age 80?

- 1 2.4
  - 2 0.04
  - 3 -2.4
  - 4 -0.04
- 11 The table below shows the number of grams of carbohydrates,  $x$ , and the number of Calories,  $y$ , of six different foods.

Carbohydrates ( $x$ )	Calories ( $y$ )
8	120
9.5	138
10	147
6	88
7	108
4	62

Which equation best represents the line of best fit for this set of data?

- 1  $y = 15x$
- 2  $y = 0.07x$
- 3  $y = 0.1x - 0.4$
- 4  $y = 14.1x + 5.8$

- 12 If  $A = 3x^2 + 5x - 6$  and  $B = -2x^2 - 6x + 7$ , then  $A - B$  equals

- 1  $-5x^2 - 11x + 13$
- 2  $5x^2 + 11x - 13$
- 3  $-5x^2 - x + 1$
- 4  $5x^2 - x + 1$

- 13 Which table of values represents a linear relationship?

1

$x$	$f(x)$
-1	-3
0	-2
1	1
2	6
3	13

3

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

2

$x$	$f(x)$
-1	$\frac{1}{2}$
0	1
1	2
2	4
3	8

4

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

- 14 The inequality  $7 - \frac{2}{3}x < x - 8$  is equivalent to

- 1  $x > 9$
- 2  $x > -\frac{3}{5}$
- 3  $x < 9$
- 4  $x < -\frac{3}{5}$

- 15 Kate has a coin collection. She keeps 7 of the coins in a box, which is only 5% of her entire collection. What is the total number of coins in Kate's coin collection?

- 1 12
- 2 14
- 3 120
- 4 140

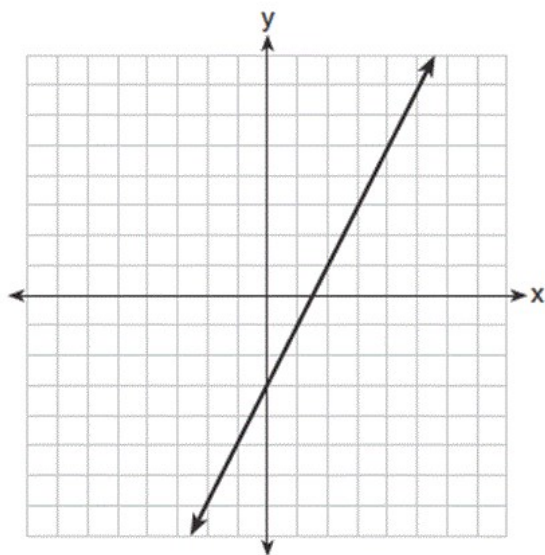
- 16 A public opinion poll was taken to explore the relationship between age and support for a candidate in an election. The results of the poll are summarized in the table below.

Age	For	Against	No Opinion
21–40	30	12	8
41–60	20	40	15
Over 60	25	35	15

What percent of the 21–40 age group was for the candidate?

- 1 15
- 2 25
- 3 40
- 4 60

- 17 Which function has the same  $y$ -intercept as the graph below?



- 1  $y = \frac{12 - 6x}{4}$
- 2  $27 + 3y = 6x$
- 3  $6y + x = 18$
- 4  $y + 3 = 6x$

- 18 Connor wants to attend the town carnival. The price of admission to the carnival is \$4.50, and each ride costs an additional 79 cents.

If he can spend at most \$16.00 at the carnival, which inequality can be used to solve for  $r$ , the number of rides Connor can go on, and what is the maximum number of rides he can go on?

- 1  $0.79 + 4.50r \leq 16.00$ ; 3 rides
- 2  $0.79 + 4.50r \leq 16.00$ ; 4 rides
- 3  $4.50 + 0.79r \leq 16.00$ ; 14 rides
- 4  $4.50 + 0.79r \leq 16.00$ ; 15 rides

- 19 Joey enlarged a 3-inch by 5-inch photograph on a copy machine. He enlarged it four times. The table below shows the area of the photograph after each enlargement.

Enlargement	0	1	2	3	4
Area (square inches)	15	18.8	23.4	29.3	36.6

What is the average rate of change of the area from the original photograph to the fourth enlargement, to the nearest tenth?

- 1 4.3
- 2 4.5
- 3 5.4
- 4 6.0

- 20 A laboratory technician studied the population growth of a colony of bacteria. He recorded the number of bacteria every other day, as shown in the partial table below.

$t$ (time, in days)	0	2	4
$f(t)$ (bacteria)	25	15,625	9,765,625

Which function would accurately model the technician's data?

- 1  $f(t) = 25^t$
- 2  $f(t) = 25^{t+1}$
- 3  $f(t) = 25t$
- 4  $f(t) = 25(t+1)$

- 21 The solution to  $-2(1 - 4x) = 3x + 8$  is

- 1  $\frac{6}{11}$
- 2 2
- 3  $-\frac{10}{7}$
- 4 -2

- 22 Jason used \$20,000 to buy a car, which is 80% of the money he had saved in his bank account. Which equation can be used to find the total amount of money Jason had saved in his bank account,  $x$ ?

1  $\frac{x}{20,000} = \frac{80}{100}$

2  $\frac{20,000}{x} = \frac{80}{100}$

3  $\frac{x}{100} = \frac{80}{20,000}$

4  $\frac{80}{x} = \frac{20,000}{100}$

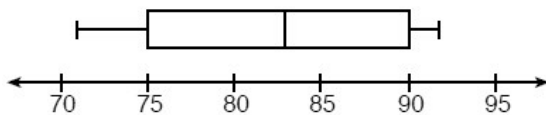
- 23 At a middle school, 74 students have freckles. There are 258 students in the school. To the nearest tenth of a percent, what percent of the students have freckles?

- 1 18.4%  
2 28.7%  
3 34.6%  
4 40.2%

- 24 The solution to  $4p + 2 < 2(p + 5)$  is

- 1  $p > -6$   
2  $p < -6$   
3  $p > 4$   
4  $p < 4$

- 25 The box plot below summarizes the data for the average monthly high temperatures in degrees Fahrenheit for Orlando, Florida.



The third quartile is

- 1 92  
2 90  
3 83  
4 71

- 26 Students were asked to name their favorite sport from a list of basketball, soccer, or tennis. The results are shown in the table below.

	Basketball	Soccer	Tennis
Girls	42	58	20
Boys	84	41	5

What percentage of the students chose soccer as their favorite sport?

- 1 39.6%  
2 41.4%  
3 50.4%  
4 58.6%

- 27 A part of Jennifer's work to solve the equation  $2(6x^2 - 3) = 11x^2 - x$  is shown below.

Given:  $2(6x^2 - 3) = 11x^2 - x$

Step 1:  $12x^2 - 6 = 11x^2 - x$

Which property justifies her first step

- 1 identity property of multiplication  
2 multiplication property of equality  
3 commutative property of multiplication  
4 distributive property of multiplication over subtraction

- 28 Which value of  $x$  results in equal outputs for  $j(x) = 3x - 2$  and  $b(x) = |x + 2|$ ?

- 1 -2  
2 2  
3  $\frac{2}{3}$   
4 4

- 29 The expression  $49x^2 - 36$  is equivalent to

- 1  $(7x - 6)^2$   
2  $(24.5x - 18)^2$   
3  $(7x - 6)(7x + 6)$   
4  $(24.5x - 18)(24.5x + 18)$

- 30 Tony bought a \$48 sweatshirt and used a coupon for a 10% discount. Keith bought an identical sweatshirt at a different store for \$42.95. Which statement is true?

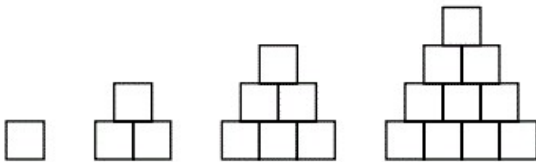
- 1 Tony paid \$0.25 less than Keith paid.  
2 Tony paid \$4.95 less than Keith paid.  
3 Keith paid \$0.25 less than Tony paid.  
4 Keith paid \$4.95 less than Tony paid.

- 31 Lea wants to save money on a new computer. At the store near her, the computer she wants is listed at a regular price of \$400.00.
- On Saturday, the store will have a sale and discount the computer by 30%.
  - Shoppers who buy a computer that same Saturday before 9:00 a.m. will also receive an additional 10% off the sale price.

How much will Lea pay, without tax, when she buys the computer that Saturday before 9:00 a.m.?

- 1 \$148.00
- 2 160.00
- 3 \$240.00
- 4 \$252.00

- 32 A sequence of blocks is shown in the diagram below.



This sequence can be defined by the recursive function  $a_1 = 1$  and  $a_n = a_{n-1} + n$ . Assuming the pattern continues, how many blocks will there be when  $n = 7$ ?

- 1 13
- 2 21
- 3 28
- 4 36

- 33 A company that manufactures radios first pays a start-up cost, and then spends a certain amount of money to manufacture each radio. If the cost of manufacturing  $r$  radios is given by the function  $c(r) = 5.25r + 125$ , then the value 5.25 best represents

- 1 the start-up cost
- 2 the profit earned from the sale of one radio
- 3 the amount spent to manufacture each radio
- 4 the average number of radios manufactured

- 34 The 15 members of the French Club sold candy bars to help fund their trip to Quebec. The table below shows the number of candy bars each member sold.

0	35	38	41	43
45	50	53	53	55
68	68	68	72	120

When referring to the data, which statement is *false*?

- 1 The mode is the best measure of central tendency for the data.
  - 2 The data have two outliers.
  - 3 The median is 53.
  - 4 The range is 120.
- 35 At a store, a hat has a regular price of  $x$  dollars. During a sale, the price of the hat is discounted by 20%. The expression  $0.8x$  describes the discounted price, in dollars, of the hat. Which expression also describes the discounted price, in dollars, of the hat?

- 1  $0.2x$
- 2  $x - 20$
- 3  $x - 0.2$
- 4  $x - 0.2x$