

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

Assignment: MM ALGEBRA ASSIGNMENT 6

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

$$\text{Given: } 2(6x^2 - 3) = 11x^2 - x$$

$$\text{Step 1: } 12x^2 - 6 = 11x^2 - x$$

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

- 2 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

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

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

- 4 If  $f(x) = \frac{1}{2}x^2 - (\frac{1}{4}x + 3)$ , what is the value of  $f(8)$ ?

- 1 11
- 2 17
- 3 27
- 4 33

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

Teacher: Villegas

- 5 A plumber has a set fee for a house call and charges by the hour for repairs. The total cost of her services can be modeled by  $c(t) = 125t + 95$ .

Which statements about this function are true?

- I. A house call fee costs \$95.
- II. The plumber charges \$125 per hour.
- III. The number of hours the job takes is represented by  $t$ .

- 1 I and II, only
- 2 I and III, only
- 3 II and III, only
- 4 I, II and III

- 6 What is the domain of the relation shown below?  
 $\{(4,2), (1,1), (0,0), (1,-1), (4,-2)\}$

- 1  $\{0, 1, 4\}$
- 2  $\{-2, -1, 0, 1, 2\}$
- 3  $\{-2, -1, 0, 1, 2, 4\}$
- 4  $\{-2, -1, 0, 0, 1, 1, 1, 2, 4, 4\}$

- 7 What is the value of the expression  $2x^2 + 5x - 6$  when  $x = 2$ ?

- 1 12
- 2 20
- 3 22
- 4 4

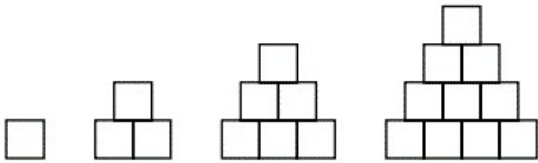
- 8 What is the solution to the inequality  $2 + \frac{4}{9}x \geq 4 + x$ ?

- 1  $x \leq -\frac{18}{5}$
- 2  $x \geq -\frac{18}{5}$
- 3  $x \leq \frac{54}{5}$
- 4  $x \geq \frac{54}{5}$

- 9 Konnor wants to burn 250 Calories while exercising for 45 minutes at the gym. On the treadmill, he can burn 6 Cal/min. On the stationary bike, he can burn 5 Cal/min. If  $t$  represents the number of minutes on the treadmill and  $b$  represents the number of minutes on the stationary bike, which expression represents the number of Calories that Konnor can burn on the stationary bike?

- 1  $b$
- 2  $5b$
- 3  $45 - b$
- 4  $250 - 5b$

- 10 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

- 11 The highest possible grade for a book report is 100. The teacher deducts 10 points for each day the report is late. Which kind of function describes this situation?

- 1 linear
- 2 quadratic
- 3 exponential growth
- 4 exponential decay

- 12 An equation is given below.

$$4(2x - 3) = 0.2(x + 5) + 5.72$$

The solution to the equation is

- 1 0.9
- 2 1.8
- 3 2.4
- 4 3.6

- 13 How many of the equations listed below represent the line passing through the points (2, 3) and (4, -7)?

$$5x + y = 13$$

$$y + 7 = -5(x - 4)$$

$$y = -5x + 13$$

$$y - 7 = 5(x - 4)$$

- 1 1
- 2 2
- 3 3
- 4 4

- 14 Determine and state whether the sequence 1, 3, 9, 27, ... displays exponential behavior. Explain how you arrived at your decision.

- 15 Last weekend, Emma sold lemonade at a yard sale. The function  $P(c) = .50c - 9.96$  represented the profit,  $P(c)$ , Emma earned selling  $c$  cups of lemonade. Sales were strong, so she raised the price for this weekend by 25 cents per cup. Which function represents her profit for this weekend?

$$1 P(c) = .25c - 9.96$$

$$2 P(c) = .50c - 9.71$$

$$3 P(c) = .50c - 10.21$$

$$4 P(c) = .75c - 9.96$$

- 16 Which polynomial is twice the sum of  $4x^2 - x + 1$  and  $-6x^2 + x - 4$ ?

$$1 -2x^2 - 3$$

$$2 -4x^2 - 3$$

$$3 -4x^2 - 6$$

$$4 -2x^2 + x - 5$$

- 17 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  $a_1 = 3$
- 4  $a_1 = 1$
- 5  $a_n = a_{n-1} + 2$
- 6  $a_n = a_{n-1} + 1$

- 18 When  $3a + 7b > 2a - 8b$  is solved for  $a$ , the result is

- 1  $a > -b$
- 2  $a < -b$
- 3  $a < -15b$
- 4  $a > -15b$

- 19 Which expression is equivalent to  $n + n - 0.18n$ ?

- 1  $1.18n$
- 2  $1.82n$
- 3  $n - 0.18$
- 4  $2n - 0.82$

- 20 If  $a = 2$  and  $b = 3$ , what is the value of  $3a^2b$ ?

- 1 36
- 2 39
- 3 54
- 4 108

- 21 What is the solution to the equation  $3x + 9 - 7x = 2(x + 6)$ ?

- 1  $-\frac{1}{2}$
- 2  $\frac{1}{2}$
- 3  $-6$
- 4  $6$

- 22 Picture Perfect Lake rents canoes. They charge a \$20 rental fee plus \$2.50 an hour. What is the maximum number of hours someone can rent a canoe and spend *no more than* \$26.25? [Ignore tax.]

- 1 18.5 hours
- 2 10.5 hours
- 3 3.75 hours
- 4 2.5 hours

- 23 Which of the following terms has the coefficient with the largest value?

- 1  $x^4$
- 2  $5x$
- 3  $2x^5$
- 4  $4x^4$

- 24 A teacher wrote the following set of numbers on the board:

$$a = \sqrt{20} \quad b = 2.5 \quad c = \sqrt{225}$$

Explain why  $a + b$  is irrational, but  $b + c$  is rational.

- 25 When solving the equation  $12x^2 - 7x = 6 - 2(x^2 - 1)$ , Evan wrote  $12x^2 - 7x = 6 - 2x^2 + 2$  as his first step. Which property justifies this step?

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