

Name: _____

Assignment: MM ALGEBRA ASSIGNMENT 1

1 Look at the pattern of numbers below:

500, 502, 506, 512, 520, _____, _____, _____

Which three numbers should come next?

- 1 528, 540, 554
- 2 530, 540, 550
- 3 540, 568, 592
- 4 530, 542, 556

2 If this pattern continues, what value will represent the number of stars in fifth figure in the pattern?



- 1 1
- 2 25
- 3 243
- 4 3,125

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

- 1 32
- 2 -24
- 3 24
- 4 4

4 Which function defines the sequence $-6, -10, -14, -18, \dots$, where $f(6) = -26$?

- 1 $f(x) = -4x - 2$
- 2 $f(x) = 4x - 2$
- 3 $f(x) = -x + 32$
- 4 $f(x) = x - 26$

Class/Period: _____

Teacher: Villegas

5 A student formed a pattern, which is shown in the table below. The first four terms of the pattern are displayed.

| Term | Value |
|------|-------|
| 1 | 0 |
| 2 | 3 |
| 3 | 8 |
| 4 | 15 |

What expression can be used to determine the value of any term, n ?

- 1 $n - 1$
- 2 $n + 1$
- 3 $2n + 2$
- 4 $n^2 - 1$

6 Solve for x : $8x + 9 = 5x + 6$

- 1 -1
- 2 1
- 3 5
- 4 $-\frac{3}{13}$

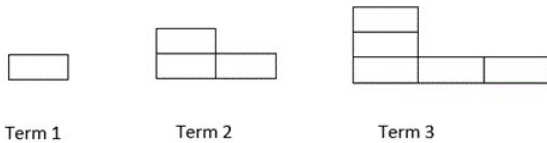
7 A student formed a pattern, which is shown in the table below. The first four terms of the pattern are displayed.

| Term | Value |
|------|-------|
| 1 | 1 |
| 2 | 8 |
| 3 | 27 |
| 4 | 64 |

What expression can be used to determine the value of any term, n ?

- 1 n^3
- 2 n^2
- 3 $3n$
- 4 $2n$

- 8 The diagram below represents the first three terms in a sequence.



Assuming the pattern continues, which formula determines a_n the number of rectangles in the n th term?

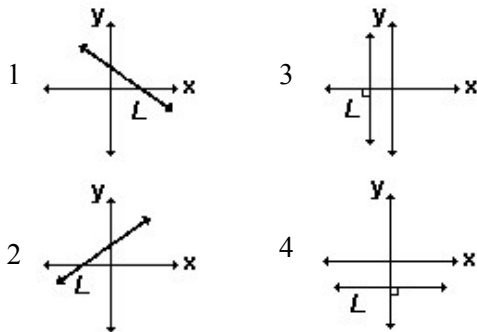
- 1 $a_n = n + 1$
 - 2 $a_n = \frac{1}{2}n + 1$
 - 3 $a_n = 2n + 1$
 - 4 $a_n = 2n - 1$
- 9 Look at the pattern of numbers below:
7020, 7024, 7032, 7044, 7060, _____, _____,

- Which three numbers should come next?
- 1 7080, 7104, 7132
 - 2 7068, 7098, 7128
 - 3 7085, 7115, 7140
 - 4 7080, 7105, 7135

- 10 What is the n th term of the sequence $-1, 3, 7, 11, \dots$?

- 1 $a_n = -1 - 4(n - 1)$
- 2 $a_n = -1 + 4(n - 1)$
- 3 $a_n = 4 - (n - 1)$
- 4 $a_n = 4 + (n - 1)$

- 11 In which graph does line L have a negative slope?



- 12 The table below shows the number of seats in a theater based on the number of rows.

| Row, n | Number of Seats, S |
|----------|----------------------|
| 1 | 18 |
| 2 | 31 |
| 3 | 44 |
| 4 | 57 |
| 5 | 70 |

Which function represents the number of seats in a theater with n rows?

- 1 $S(n) = 18 + 13(n - 1)$
 - 2 $S(n) = 13 + 18(n - 1)$
 - 3 $S(n) = 5n + 13$
 - 4 $S(n) = 13n + 18$
- 13 Given $f(9) = -2$, which function can be used to generate the sequence $-8, -7.25, -6.5, -5.75, \dots$?

- 1 $f(n) = -8 + 0.75n$
- 2 $f(n) = -8 - 0.75(n - 1)$
- 3 $f(n) = -8.75 + 0.75n$
- 4 $f(n) = -0.75 + 8(n - 1)$

- 14 Which of the following are expressions, not equations?

- a) $6x^2 + 3x - 10$
- b) $\frac{4x}{3} + 10y$
- c) $2x = 3y$
- d) $y = 7x - 12$
- e) $3y(2x + 1)$
- f) $(x - 2)(x + 3) = 10$

- 1 a and b , only
- 2 c , d and f , only
- 3 a , b and e , only
- 4 All of the choices are expressions.

- 15 In a sequence, the first term is 4 and the common difference is 3. The fifth term of this sequence is

- 1 -11
- 2 -8
- 3 16
- 4 19

- 16 A student formed a pattern, which is shown in the table below. The first four terms of the pattern are displayed.

| Term (n) | Value |
|--------------|-------|
| 1 | 5 |
| 2 | 8 |
| 3 | 11 |
| 4 | 14 |

What expression can be used to determine the value of any term, n ?

- 1 $n + 4$
- 2 $2n + 2$
- 3 $3n + 2$
- 4 $n + 10$

- 17 The sequence below represents the amount of money in Cassandra's lunch account at the end of each school day for days 1, 2, 3, 4, and 5.

\$200, \$197, \$194, \$191, \$188, ...

Assuming she continues to buy lunch until she does not have enough money, which function could be used to find the balance of Cassandra's lunch account at the end of day x ?

- 1 $A(x) = x - 3$
- 2 $A(x) = -3x + 203$
- 3 $A(x) = -3x + 200$
- 4 $A(x) = 3x - 203$

- 18 The expression $15 - 3[2 + 6(-3)]$ simplifies to

- 1 -45
- 2 -33
- 3 63
- 4 192

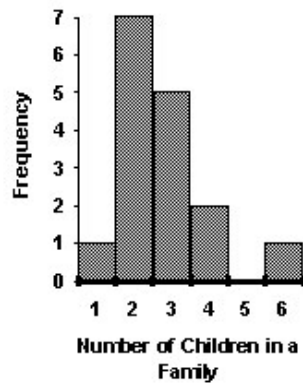
- 19 Solve for x : $0.5x + 3 = 4.5$

- 1 -3
- 2 -5
- 3 3
- 4 -5

- 20 Solve for x : $0.3x = 0.01x + 2.9$

- 1 1
- 2 0.1
- 3 10
- 4 100

- 21 The histogram shows the distribution of the number of children in the families of the students in a ninth-grade class.



The mode of the set of data in the histogram is

- 1 5
- 2 2
- 3 3
- 4 7

- 22 Chad complained to his friend that he had five equations to solve for homework. How many of the homework questions are equations?

Math Homework

1. $3x^2 \cdot 2x^4$
2. $5 - 2x = 3x$
3. $3(2x + 7)$
4. $7x^2 + 2x - 3x^2 - 9$
5. $\frac{2}{3} = \frac{x+2}{6}$

Name Chad

Answer:

23 Brian deposited 1 cent into an empty non-interest bearing bank account on the first day of the month. He then additionally deposited 3 cents on the second day, 9 cents on the third day, and 27 cents on the fourth day. What would be the total amount of money in the account at the end of the 20th day if the pattern continued?

- 1 \$11,622,614.67
- 2 \$17,433,922.00
- 3 \$116,226,146.80
- 4 \$1,743,392,200.00

24 If $f(n) = (n - 1)^2 + 3n$, which statement is true?

- 1 $f(3) = -2$
- 2 $f(-2) = 3$
- 3 $f(-2) = -15$
- 4 $f(-15) = -2$

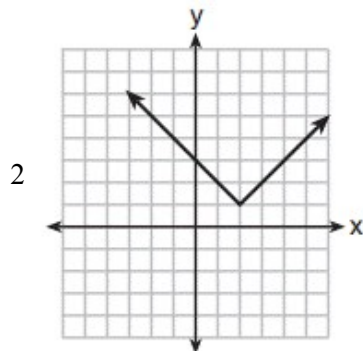
25 The function $g(x)$ is defined as $g(x) = -2x^2 + 3x$. The value of $g(-3)$ is

- 1 -27
- 2 -9
- 3 27
- 4 45

26 Which relation does *not* represent a function?

1

| | | | | | | |
|----------|-----|---|-----|---|-----|-----|
| x | 1 | 2 | 3 | 4 | 5 | 6 |
| y | 3.2 | 4 | 5.1 | 6 | 7.4 | 8.8 |



27 Which function could be used to represent the sequence 8, 20, 50, 125, 312.5, ..., given that $a_1 = 8$?

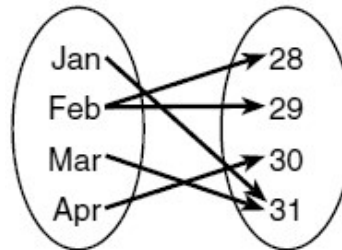
- 1 $a_n = a_{n-1} + a_1$
- 2 $a_n = 2.5(a_n - 1)$
- 3 $a_n = a_1 + 1.5(a_n - 1)$
- 4 $a_n = (a_1)(a_n - 1)$

28 Solve algebraically for x :
 $3600 + 1.02x < 2000 + 1.04x$

29 Which expression is equivalent to $16x^4 - 64$?

- 1 $(4x^2 - 8)^2$
- 2 $(8x^2 - 32)^2$
- 3 $(4x^2 + 8)(4x^2 - 8)$
- 4 $(8x^2 + 32)(8x^2 - 32)$

30 A mapping is shown in the diagram below.



This mapping is

- 1 a function, because Feb has two outputs, 28 and 29
- 2 a function, because two inputs, Jan and Mar, result in the output 31
- 3 not a function, because Feb has two outputs, 28 and 29
- 4 not a function, because two inputs, Jan and Mar, result in the output 31

31 Given the function $f(n)$ defined by the following:

$$f(1) = 2$$

$$f(n) = -5f(n - 1) + 2$$

Which set could represent the range of the function?

- 1 $\{2, 4, 6, 8, \dots\}$
- 2 $\{2, -8, 42, -208, \dots\}$
- 3 $\{-8, -42, -208, 1042, \dots\}$
- 4 $\{-10, 50, -250, 1250, \dots\}$

Answer Key for : MM ALGEBRA ASSIGNMENT 1

1 => 4 **2** => 2 **3** => 3 **4** => 1 **5** => 4 **6** => 1 **7** => 1 **8** => 4 **9** => 1 **10** => 2 **11** => 1

12 => 1 **13** => 3 **14** => 3 **15** => 3 **16** => 3 **17** => 2 **18** => 3 **19** => 3 **20** => 3 **21** => 2

22 => 2 **23** => 2 **24** => 2 **25** => 1 **26** => 4 **27** => 2

28 Constructed Response:

29 => 3 **30** => 3 **31** => 2

$$3600 + 1.02x < 2000 + 1.04x$$

$$3600 - 2000 + 1.02x - 1.02x < 2000 - 2000 + 1.04x - 1.02x$$

$$1600 < 0.02x$$

$$1600 \div 0.02 < 0.02x \div 0.02$$

$$80000 < x$$