

Homework: Arithmetic Sequence

May 13

Glue & show work on page 45

Determine if the sequence is arithmetic. If it is, find the common difference, the 52nd term, the explicit formula, and the three terms in the sequence after the last one given.

- 1) $13, 15, 17, 19, \dots$ $+2 \ +2 \ +2$
- 2) $4, 7, 12, 19, \dots$ $+3 \ +5 \ +7$
not arithmetic
- 3) $34, 28, 22, 16, \dots$ $-6 \ -4$

Given the explicit formula for an arithmetic sequence find the common difference, the term named in the problem, and the recursive formula.

- 4) $a_n = 17 + 8n$
Find a_{39}

Green Regents Review Book
page 16 #27, page 17 #30, page 21 #8, page 43 #9

1.) Yes, it is arithmetic w/ a common difference of 2.

next 3 terms

$$a_n = a_1 + d(n-1) \quad 21, 23, 25$$

$$a_n = 13 + 2(n-1)$$

$$a_n = 13 + 2n - 2$$

$$a_n = 11 + 2n \text{ explicit formula}$$

2.) No, it is not arithmetic.

3.) Yes, it is arithmetic w/ a common difference of -6.

next 3 terms

$$a_n = a_1 + (n-1)d \quad 10, 4, -2$$

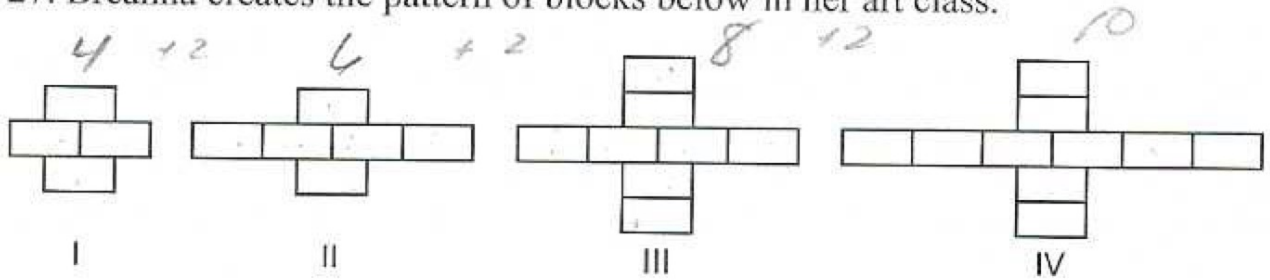
$$a_n = 34 + (n-1)(-6)$$

$$a_n = 34 - 6n + 6$$

$$a_n = 40 - 6n \text{ explicit formula}$$

ALGEBRA 1 - NGLS
Test 2

27. Breanna creates the pattern of blocks below in her art class.



A friend tells her that the number of blocks in the pattern is increasing exponentially. Is her friend correct?

Common difference of 2

Explain your reasoning.

no, it is increasing by 2 which means it is linear

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

$$a_n = 4 + 2n - 2 \rightarrow a_n = 2 + 2n$$

28. Find the area of the rectangle with a length of $(x^2 - 2)$ and a width of $(2x^2 - x + 2)$. Write your answer as a trinomial in simplest form.

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

Polynomial

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

29. Given $h(x) = -2x^2 - x + 2$, find $h(-2)$.

$$h(-2) = -2(-2)^2 - (-2) + 2$$

$$= -2(4) + 2 + 2$$

$$= -8 + 4$$

$$h(-2) = -4$$

ALGEBRA 1 - NGLS
Test 2

30. Rows of chairs are set out for a wedding. There are 6 chairs in the first row, 14 chairs in the second row, and 22 chairs in the third row. The rows continue in the same patterns for a total of 7 rows. How many chairs are set out for the wedding guests?

1	6		$d = 8$
2	14	+8	$a_n = a_1 + d(n-1)$
3	22	+8	$a_n = 6 + 8(n-1)$
4	30		$a_n = 6 + 8n - 8$
5	38		$a_n = 8n - 2 \rightarrow$ formula
6	46		
7	54		

ans
210 chairs

Part III

Answer all 4 questions in this part. The correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [16]

31. Jennifer and Kim enjoy making bracelets. At the beginning of this year Jennifer had already made twenty-five bracelets. She continues to make eight bracelets every month. Kim just started making bracelets recently, so she had only made eleven at the beginning of the year. Kim is able to work faster, so she makes ten bracelets every month.

Write an inequality to model the situation comparing Jennifer and Kim.

During what month(s) this year will Kim have made more bracelets than Jennifer?

Next Generation Learning Standards

Test 3

Part I

Answer all 24 questions in this part. Each correct answer will receive 2 credits. No partial credit will be allowed. For each question, write on the space provided the numeral preceding the word or expression that best completes the statement or answers the question.

1. Which expression is equivalent to $(x^2 + 3x - 4)(x - 5)$?

(1) $x^3 + 8x^2 - 19x + 20$

(3) $x^3 - 2x^2 - 11x + 20$

(2) $x^3 - 2x^2 - 19x + 20$

(4) $x^3 - 8x^2 - 11x + 20$

1 2

2. What are the zeros of $(x - 2)(x^2 - 9)$?

(1) $\{-3, 2, 3\}$

(2) $\{-3, 3\}$

(3) $\{-3, 0, -3\}$

(4) $\{0, 3\}$

2 1

3. The formula for converting degrees Celsius to Fahrenheit is $F = \frac{9}{5}C + 32$. Which expression is correctly written to convert Fahrenheit temperatures into degrees Celsius?

(1) $C = \frac{9}{5}F + 32$

(3) $C = \frac{5F - 160}{9}$

(2) $C = \frac{5}{9}F - 160$

(4) $C = 32F + 160$

3 3

4. What are the restrictions of the domain of the function $F(x) = \frac{1}{x^2 - 9}$?

(1) $x \neq 3$

(2) $x \neq \pm 3$

(3) $x \neq 9$

(4) $x \neq 0$

4 2

5. What is the value of $f(2)$ when $f(x) = \begin{cases} 3x^2 + x - 1, & x \geq 1 \\ 2x, & x < 1 \end{cases}$?

(1) 4

(2) 7

(3) 11

(4) 13

5 4

6. What are the possible values for x in the equation $4x^2 = 64$?

(1) $x = 0$

(2) $x = 4$

(3) $x = 4, -4$

(4) $x = 0, 4, -4$

6 3

7. Samuel's Car Service will charge a flat travel fee of \$4.75 for anyone making a trip. They charge an additional set rate of \$1.50 per mile that is traveled. What is an equation that represents the charges?

(1) $y = 1.5x + 1.5$

(3) $y = 1.5x + 4.75$

(2) $y = 4.75x + 4.75$

(4) $y = 4.75x + 1.5$

7 3

8. The accompanying frequency table indicates the grades on the math midterm in Ms. Dennis' class. The median of the data lies in which interval?

(1) 91-95

(3) 81-85

(2) 76-80

(4) 86-90

Frequency Table		
Interval	Tally	Frequency
96-100		5
91-95	I	1
86-90		9
81-85		4
76-80		2
71-75		4

current freq
25
2.0
19
10
6
4
8
 $\frac{25}{2} = 12.5$
4

total 25

Test 5

7. Which situation could be modeled with a linear function?

- (1) the height of a ball that is thrown in the air
- (2) the price of a car that depreciates 20% per year
- (3) the amount of money Jonathan pays for a certain number of gallons of gas at \$3.85 per gallon
- (4) a bacteria colony which doubles in number every 4 hours

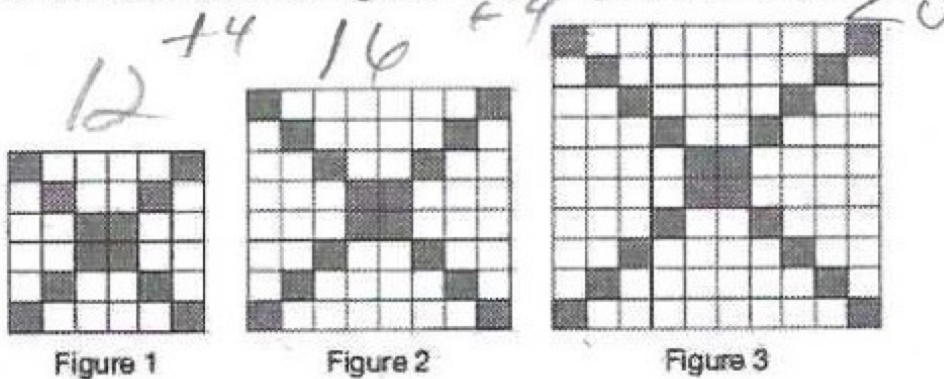
7 _____

8. A physics lab group was conducting an experiment to determine the length of a spring when different objects of varying weight were hung from it. After testing ten different objects, the group calculated the following linear regression where x is the weight of the object in ounces and $h(x)$ is the length of the spring in centimeters: $h(x) = 2.3x + 15.5$. What does y -intercept of this equation indicate about the relationship between object weight and the length of the spring?

- (1) When there is no object on the spring, its length is 2.3 cm.
- (2) When there is no object on the spring, its length 15.5 cm.
- (3) For every ounce of weight, the spring length increases by 2.3 cm.
- (4) For every ounce of weight, the spring length increases by 15.5 cm.

8 _____

9. The shaded boxes in the figures below represent a sequence.



1	12 + 4
2	16 + 4
3	20

If figure 1 represents the first term and this pattern continues, how many shaded blocks will be in figure 35?

- (1) 55
- (2) 148
- (3) 420
- (4) 805

$a_n = 12 + 4(n-1)$
 $a_n = 12 + 4n - 4$
 $a_n = 8 + 4n$

10. Which ordered pair is the closest to the solution to the following system of equations?

$2y - 2x = 8$
 $y = 2x - 6$

- (1) (-2, 2)
- (2) (2, -2)
- (3) (10, 14)
- (4) (4, 3)

10 _____

11. If $f(x) = x^2 - 5x$ and $g(x) = 2x - 3$, which expression represents the product of these two functions?

- (1) $x^2 - 3x - 3$
- (2) $2x^3 - 13x^2 + 15x$
- (3) $9x^2 - 15x$
- (4) $2x^3 - 15x$

11 _____

12. The function $G(m)$ represents the amount of gasoline consumed by a car traveling m miles. An appropriate domain for this function would be

- (1) integers
- (2) rational numbers
- (3) nonnegative integers
- (4) nonnegative rational numbers

12 _____