

Math 6**Worksheet 2**

NAME _____

DATE : _____

SECTION : _____

SCORE : _____

Formulates the rule in finding the nth term using different strategies (looking for a pattern, guessing and checking, working backwards) e.g. 4,7,13,16,...n (the nth term is $3n+1$ M6AL-IIIId-7

MONDAY

A list of number arranged in a row is called a number sequence. Each number in a sequence is called a term.

A sequence is an enumerated collection of objects (usually numbers) that follow a certain pattern or rule.

The "nth term" is a formula that enables you to find the next term in a sequence.

Example 1,

In the sequence 4,7,10,13... find the 7th term. Notice that the terms of the sequence have a constant difference of 3, thus it can be guessed that the term contains $3n$. And based from the 0th term must be 1, hence, the nth term is $3n+1$

$$1^{\text{st}} \text{ term} \text{-----} 3(1) + 1 = 4$$

$$5^{\text{th}} \text{ term} \text{-----} 3(5) + 1 =$$

$$2^{\text{nd}} \text{ term} \text{-----} 3(2) + 1 = 7$$

$$6^{\text{th}} \text{ term} \text{-----} 3(6) + 1 = 19$$

$$3^{\text{rd}} \text{ term} \text{-----} 3(3) + 1 = 10$$

$$7^{\text{th}} \text{ term} \text{-----} 3(7) + 1 = 22$$

$$4^{\text{th}} \text{ term} \text{-----} 3(4) + 1 = 13$$

The 7th term then is 22.

Example 2. **Fibonacci Sequence** **0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ...**

The Fibonacci Sequence is found by adding the two numbers before it together.

The number 2 is found by adding the two numbers before it (1+ 1).

The number 21 is found by adding the two numbers before it (8+13).

The next number in the sequence above would be 55 (21+34).

Example 3. **Square Numbers** **1, 4, 9, 16, 25, 36, 49...**

They are the squares of counting/whole numbers 1, 2, 3, 4, 5, 6, 7, 8.

$$1 \times 1 = 1$$

$$5 \times 5 = 25$$

$$2 \times 2 = 4$$

$$6 \times 6 = 36$$

$$3 \times 3 = 9$$

$$7 \times 7 = 49$$

$$4 \times 4 = 16$$

$$8 \times 8 = 64$$

Example 4. **Cube Numbers.** They are the cubes of counting numbers 1, 2, 3, 4, 5.

$$1 \times 1 \times 1 = 1$$

$$2 \times 2 \times 2 = 8$$

$$3 \times 3 \times 3 = 27$$

$$4 \times 4 \times 4 = 64$$

$$5 \times 5 \times 5 = 125 \quad \text{Can you figure out the next few numbers?}$$

Directions: Study each sequence and write the next two missing terms

1. 3, 7, 11, 15, 19, _____, _____

2. 4, 7, 13, 25, _____, _____

3. 16, 25, 36, 49, _____, _____

4. 3, 7, 15, 31, _____, _____

5. 9, 18, 27, 36, 45, _____, _____

TUESDAY

Directions: Write the rule used for each sequence, then write the missing number.

1. 1, 6, 11, 16, 21 _____

Rule : _____

2. 5, 9, 13, 17, 21 _____

Rule : _____

3. 8, 16, 24, 32, 40 _____

Rule : _____

4. 4, 12, 20, 28, 32 _____

Rule : _____

5. 23, 19, 15, 11, 7 _____

Rule : _____

WEDNESDAY

Differentiates expression from equation . M6AL-IIIId-15

Algebraic equation- gives a complete information because of the relation symbol (=)

Examples: $3n = 21$, $x + 7 = 13$, Twice the sum of a number and 9 is 36.

Algebraic expression- does not give a complete information for it has no answer and no relation symbol

Directions: Analyze each number sentence and write expression or equation on the space provided for.

- _____ 1. 34 more than a number
- _____ 2. $5 \times 6 + (9 \div 3)$
- _____ 3. $5N = 625$
- _____ 4. A Number – 12
- _____ 5. The product of a number and 8 is 56.

THURSDAY

Directions: Put expression or equation before the number then Match column A with column B.

- | A | B |
|--|-----------------------|
| _____ 1. a increased by b | a. $6 \times d = 12$ |
| _____ 2. the difference between x and y | b. $x^2 - y$ |
| _____ 3. three times k minus l | c. $(3 \times k) - l$ |
| _____ 4. the product of 6 and d is 12 | d. $a + b$ |
| _____ 5. the square of x diminished by y | e. $x - y$ |

FRIDAY

1. What formula is derived in finding the sequence 4, 12, 20, 28, 36 ?
A. $n+8 - 4$ B. $8 \times n + 4$ C. $8n - 4$ D. $4 + 8$
2. What will be the 100th term for the sequence 5, 11, 17, 23, 29.....?
A. 599 B. 600 C. 400 D. 499
3. Which of the following is an equation?
A. $10 + 9$ B. $0.5+0.2 = 0.4 + 0.3$ C. $25 \times 5 + 6$ D. $(8 + 9) \times 15$
4. The square of 3 diminished by 8 is 1, what is the numerical translation?
A. $3^2 - 8 = 1$ B. $2^3 - 8 = 1$ C. $3 \times 8 = 24$ D. $3^3 - 8 = 1$
5. If thrice a number is increased by 11, the result is 35. What is the equation for the problem?
A. $n + 11 = 35$ B. $3 + n = 11$ C. $3n + 11 = 35$ D. $2n + 12 = 35$