

Arithmetic Sequence Worksheet Answer Key PDF

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Part 1: Foundational Knowledge

What is the defining characteristic of an arithmetic sequence?

undefined. A) The ratio between consecutive terms is constant.

undefined. B) The difference between consecutive terms is constant. ✓

undefined. C) Each term is the square of the previous term.

undefined. D) The sum of the terms is constant.

The defining characteristic of an arithmetic sequence is that the difference between consecutive terms is constant.

Which of the following sequences are arithmetic? (Select all that apply)

undefined. A) 2, 4, 6, 8, 10 ✓

undefined. B) 3, 6, 12, 24, 48

undefined. C) 5, 10, 15, 20, 25 ✓

undefined. D) 1, 4, 9, 16, 25

The sequences that are arithmetic have a constant difference between terms.

Explain what the common difference in an arithmetic sequence is and how it is calculated.

The common difference is the amount added to each term to get the next term, calculated by subtracting the first term from the second term.

List the first four terms of an arithmetic sequence with a first term of 3 and a common difference of 5.

1. First term:

3

2. Second term:

8

3. Third term:

13

4. Fourth term:

18

The first four terms are 3, 8, 13, and 18.

Part 2: Understanding and Interpretation

If the first term of an arithmetic sequence is 7 and the common difference is 3, what is the fourth term?

undefined. A) 10

undefined. B) 13

undefined. C) 16 ✓

undefined. D) 19

The fourth term is calculated as $7 + 3 * (4 - 1) = 16$.

Which statements are true about the sequence 10, 15, 20, 25, 30? (Select all that apply)

undefined. A) The common difference is 5. ✓

undefined. B) The sequence is geometric.

undefined. C) The nth term can be found using the formula $a_n = 10 + (n-1) \cdot 5$. ✓

undefined. D) The sequence decreases.

The true statements will reflect the characteristics of the arithmetic sequence.

Describe how you would verify if a given sequence is arithmetic.

To verify if a sequence is arithmetic, check if the difference between consecutive terms is constant.

Part 3: Applying Knowledge and Analyzing Relationships

Using the formula for the n th term, what is the 10th term of the sequence with a first term of 2 and a common difference of 4?

undefined. A) 38 ✓

undefined. B) 40

undefined. C) 42

undefined. D) 44

The 10th term is calculated as $2 + 4 * (10 - 1) = 38$.

Given the sequence 5, 9, 13, 17, 21, which of the following are true? (Select all that apply)

undefined. A) The 6th term is 25. ✓

undefined. B) The sum of the first 5 terms is 65. ✓

undefined. C) The common difference is 4. ✓

undefined. D) The sequence is decreasing.

The true statements will reflect the characteristics of the arithmetic sequence.

Calculate the sum of the first 8 terms of an arithmetic sequence with a first term of 1 and a common difference of 3.

The sum of the first 8 terms is $1 + 4 + 7 + 10 + 13 + 16 + 19 + 22 = 88$.

If the 5th term of an arithmetic sequence is 20 and the common difference is 3, what is the first term?

undefined. A) 5

undefined. B) 7

undefined. C) 8 ✓

undefined. D) 11

The first term is calculated as $20 - 3 * (5 - 1) = 8$.

Analyze the sequence 3, 7, 11, 15, 19. Which of the following are correct? (Select all that apply)

undefined. A) The sequence is arithmetic. ✓

undefined. B) The common difference is 4. ✓

undefined. C) The sum of the first 4 terms is 36. ✓

undefined. D) The sequence is geometric.

The true statements will reflect the characteristics of the arithmetic sequence.

Break down the process of finding the number of terms in an arithmetic sequence that ends with a specific term.

To find the number of terms, use the formula for the n th term and solve for n .

Part 4: Synthesis and Reflection

Which of the following sequences could represent a real-world scenario of a savings account with a fixed monthly deposit?

undefined. A) 100, 200, 400, 800

undefined. B) 100, 150, 200, 250

undefined. C) 100, 110, 121, 133.1

undefined. D) 100, 105, 110, 120 ✓

The sequence that represents a fixed monthly deposit will have a constant difference.

Create an arithmetic sequence starting with 4 and a common difference of 6. Which of the following terms will be in your sequence? (Select all that apply)

undefined. A) 10 ✓

undefined. B) 16 ✓

undefined. C) 28 ✓

undefined. D) 34 ✓

The terms in the sequence will be 4, 10, 16, 22, 28, etc.

Design a real-world problem that can be solved using an arithmetic sequence, and explain how you would solve it.

A real-world problem could involve calculating total savings over time with fixed deposits.