

Arithmetic Sequence Worksheet

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Part 1: Foundational Knowledge

What is the defining characteristic of an arithmetic sequence?

Hint: Think about the relationship between consecutive terms.

- A) The ratio between consecutive terms is constant.
- B) The difference between consecutive terms is constant.
- C) Each term is the square of the previous term.
- D) The sum of the terms is constant.

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

Hint: Look for sequences where the difference between terms is the same.

- A) 2, 4, 6, 8, 10
- B) 3, 6, 12, 24, 48
- C) 5, 10, 15, 20, 25
- D) 1, 4, 9, 16, 25

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

Hint: Consider how you find the difference between terms.

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

Hint: Start with the first term and keep adding the common difference.

1. First term:

2. Second term:

3. Third term:

4. Fourth term:

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?

Hint: Use the formula for the n th term.

- A) 10
- B) 13
- C) 16
- D) 19

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

Hint: Consider the properties of the sequence.

- A) The common difference is 5.
- B) The sequence is geometric.
- C) The n th term can be found using the formula $a_n = 10 + (n-1) \cdot 5$.
- D) The sequence decreases.

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

Hint: Think about the steps you would take to check the differences.

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?

Hint: Apply the n th term formula: $a_n = a_1 + (n-1)d$.

- A) 38
- B) 40
- C) 42
- D) 44

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

Hint: Analyze the properties of the sequence.

- A) The 6th term is 25.
- B) The sum of the first 5 terms is 65.
- C) The common difference is 4.
- D) The sequence is decreasing.

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

Hint: Use the formula for the sum of an arithmetic series.

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

Hint: Use the formula for the n th term to solve for the first term.

- A) 5
- B) 7
- C) 8
- D) 11

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

Hint: Consider the properties of the sequence.

- A) The sequence is arithmetic.
- B) The common difference is 4.
- C) The sum of the first 4 terms is 36.
- D) The sequence is geometric.

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

Hint: Think about how you would use the formula for the n th term.

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?

Hint: Consider how savings grow over time.

- A) 100, 200, 400, 800
- B) 100, 150, 200, 250
- C) 100, 110, 121, 133.1
- D) 100, 105, 110, 120

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)

Hint: Calculate the terms based on the first term and common difference.

- A) 10
- B) 16
- C) 28
- D) 34

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

Hint: Think about a scenario involving consistent change.