

Geometric Sequence Worksheet Questions and Answers PDF

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Part 1: Building a Foundation

What is the common ratio in a geometric sequence?

Hint: Think about how terms relate to each other in a geometric sequence.

- The difference between consecutive terms
- The sum of consecutive terms
- The product of consecutive terms
- The quotient of consecutive terms ✓**

■ The common ratio is the quotient of consecutive terms in a geometric sequence.

What is the common ratio in a geometric sequence?

Hint: Think about how terms relate to each other.

- A) The difference between consecutive terms
- B) The sum of consecutive terms
- C) The product of consecutive terms
- D) The quotient of consecutive terms ✓**

■ The common ratio is the quotient of consecutive terms.

What is the common ratio in a geometric sequence?

Hint: Think about how terms relate to each other.

- A) The difference between consecutive terms
- C) The product of consecutive terms
- D) The quotient of consecutive terms ✓**
- C) The sum of consecutive terms

■ The common ratio is the quotient of consecutive terms.

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

Hint: Look for sequences where each term is multiplied by the same number.

- 2, 4, 8, 16, ... ✓
- 5, 10, 15, 20, ...
- 3, 9, 27, 81, ... ✓
- 1, 1/2, 1/4, 1/8, ... ✓

■ A geometric sequence has a constant ratio between consecutive terms.

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

Hint: Look for a constant ratio between terms.

- A) 2, 4, 8, 16, ... ✓
- B) 5, 10, 15, 20, ...
- C) 3, 9, 27, 81, ... ✓
- D) 1, 1/2, 1/4, 1/8, ... ✓

■ The geometric sequences are A, C, and D.

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

Hint: Look for a constant ratio between terms.

- A) 2, 4, 8, 16, ... ✓
- C) 3, 9, 27, 81, ... ✓
- D) 1, 1/2, 1/4, 1/8, ... ✓
- C) 5, 10, 15, 20, ...

■ The geometric sequences are A, C, and D.

Explain what characterizes a geometric sequence and how it differs from an arithmetic sequence.

Hint: Consider the definitions and formulas for both types of sequences.

A geometric sequence has a constant ratio, while an arithmetic sequence has a constant difference.

Explain what characterizes a geometric sequence and how it differs from an arithmetic sequence.

Hint: Consider the definitions and properties of both types of sequences.

A geometric sequence is characterized by a constant ratio between terms, while an arithmetic sequence has a constant difference.

Explain what characterizes a geometric sequence and how it differs from an arithmetic sequence.

Hint: Consider the definitions and formulas for both types of sequences.

A geometric sequence has a constant ratio between terms, while an arithmetic sequence has a constant difference.

Part 2: Understanding and Interpretation

If the first term of a geometric sequence is 5 and the common ratio is 3, what is the third term?

Hint: Use the formula for the n th term of a geometric sequence.

- 15
- 45 ✓
- 30
- 60

■ The third term can be calculated using the formula $a_n = a_1 * r^{(n-1)}$.

If the first term of a geometric sequence is 5 and the common ratio is 3, what is the third term?

Hint: Use the formula for the n th term to find the answer.

- A) 15
- B) 45 ✓
- C) 30
- D) 60

■ The third term is 45.

If the first term of a geometric sequence is 5 and the common ratio is 3, what is the third term?

Hint: Use the formula for the n th term to find the answer.

- A) 15
- C) 30
- D) 60
- C) 45 ✓

■ The third term is 45.

Which of the following statements about geometric sequences is true? (Select all that apply)

Hint: Consider the properties of geometric sequences.

- The common ratio can be zero.
- The sequence can have both positive and negative terms. ✓
- The sequence grows exponentially if the common ratio is greater than 1. ✓
- The sum of an infinite geometric series can be finite if the common ratio is less than 1. ✓

True statements will reflect the characteristics of geometric sequences.

Which of the following statements about geometric sequences is true? (Select all that apply)

Hint: Consider the properties of geometric sequences.

- A) The common ratio can be zero.
- B) The sequence can have both positive and negative terms. ✓
- C) The sequence grows exponentially if the common ratio is greater than 1. ✓
- D) The sum of an infinite geometric series can be finite if the common ratio is less than 1. ✓

The true statements are B, C, and D.

Which of the following statements about geometric sequences is true? (Select all that apply)

Hint: Consider the properties of geometric sequences.

- A) The common ratio can be zero.
- C) The sequence grows exponentially if the common ratio is greater than 1. ✓
- D) The sum of an infinite geometric series can be finite if the common ratio is less than 1. ✓
- C) The sequence can have both positive and negative terms. ✓

The true statements are B, C, and D.

Describe how the common ratio affects the growth or decay of a geometric sequence.

Hint: Think about the implications of different common ratios.

A common ratio greater than 1 leads to growth, while a ratio between 0 and 1 leads to decay.

Describe how the common ratio affects the growth or decay of a geometric sequence.

Hint: Think about the implications of different values for the common ratio.

The common ratio determines whether the sequence grows or decays; a ratio greater than 1 leads to growth, while a ratio between 0 and 1 leads to decay.

Describe how the common ratio affects the growth or decay of a geometric sequence.

Hint: Think about the implications of different values for the common ratio.

A common ratio greater than 1 leads to growth, while a ratio between 0 and 1 leads to decay.

Part 3: Application and Analysis

Calculate the 5th term of a geometric sequence where the first term is 2 and the common ratio is 3.

Hint: Use the formula for the nth term of a geometric sequence.

- 18
 54 ✓
 162
 486

The 5th term can be calculated using the formula $a_n = a_1 * r^{(n-1)}$.

Calculate the 5th term of a geometric sequence where the first term is 2 and the common ratio is 3.

Hint: Use the formula for the nth term to find the answer.

- A) 18
- B) 54
- C) 162 ✓
- D) 486

■ The 5th term is 162.

Calculate the 5th term of a geometric sequence where the first term is 2 and the common ratio is 3.

Hint: Use the formula for the n th term to find the answer.

- A) 18
- C) 162 ✓
- D) 486
- C) 54

■ The 5th term is 162.

A geometric sequence has a first term of 4 and a common ratio of 0.5. Which of the following are terms in this sequence? (Select all that apply)

Hint: Calculate the terms using the first term and common ratio.

- 2 ✓
- 1 ✓
- 0.5 ✓
- 0.25 ✓

■ Terms can be found by repeatedly multiplying the first term by the common ratio.

A geometric sequence has a first term of 4 and a common ratio of 0.5. Which of the following are terms in this sequence? (Select all that apply)

Hint: Calculate the terms using the first term and common ratio.

- A) 2 ✓
- B) 1 ✓
- C) 0.5 ✓
- D) 0.25 ✓

■ The terms in this sequence are A, B, C, and D.

A geometric sequence has a first term of 4 and a common ratio of 0.5. Which of the following are terms in this sequence? (Select all that apply)

Hint: Calculate the terms using the first term and common ratio.

- A) 2 ✓
- C) 0.5 ✓
- D) 0.25 ✓
- C) 1

■ The terms in this sequence are A, B, C, and D.

Given a geometric sequence with a first term of 7 and a common ratio of -2, find the 4th term.

Hint: Use the formula for the nth term of a geometric sequence.

■ The 4th term can be calculated using the formula $a_n = a_1 * r^{(n-1)}$.

Given a geometric sequence with a first term of 7 and a common ratio of -2, find the 4th term.

Hint: Use the formula for the nth term to calculate the answer.

■ The 4th term is 28.

Given a geometric sequence with a first term of 7 and a common ratio of -2, find the 4th term.

Hint: Use the formula for the nth term to calculate the answer.

The 4th term is 28.

Which of the following sequences can be transformed into a geometric sequence by adjusting one term?

Hint: Consider the properties of geometric sequences.

- 1, 2, 4, 8, 16
- 3, 6, 12, 24, 50 ✓**
- 5, 10, 20, 40, 80
- 2, 4, 8, 16, 32

Look for sequences that can have one term changed to create a constant ratio.

Which of the following sequences can be transformed into a geometric sequence by adjusting one term?

Hint: Consider the ratios between terms.

- A) 1, 2, 4, 8, 16
- B) 3, 6, 12, 24, 50 ✓**
- C) 5, 10, 20, 40, 80
- D) 2, 4, 8, 16, 32

The sequence that can be transformed is B.

Which of the following sequences can be transformed into a geometric sequence by adjusting one term?

Hint: Consider the ratios between terms.

- A) 1, 2, 4, 8, 16
- C) 5, 10, 20, 40, 80
- D) 2, 4, 8, 16, 32
- C) 3, 6, 12, 24, 50 ✓**

■ The sequence that can be transformed is B.

Consider the sequence 2, 6, 18, 54, ... Which of the following statements are true? (Select all that apply)

Hint: Analyze the pattern in the sequence.

- The sequence is geometric. ✓**
- The common ratio is 3. ✓**
- The sequence is arithmetic.
- The sequence doubles with each term.

■ Identify the characteristics of the sequence to determine which statements are true.

Consider the sequence 2, 6, 18, 54, ... Which of the following statements are true? (Select all that apply)

Hint: Analyze the ratios between the terms.

- A) The sequence is geometric. ✓**
- B) The common ratio is 3. ✓**
- C) The sequence is arithmetic.
- D) The sequence doubles with each term.

■ The true statements are A and B.

Consider the sequence 2, 6, 18, 54, ... Which of the following statements are true? (Select all that apply)

Hint: Analyze the ratios between the terms.

- A) The sequence is geometric. ✓**
- C) The sequence is arithmetic.
- D) The sequence doubles with each term.
- C) The common ratio is 3. ✓**

■ The true statements are A and B.

Analyze the sequence 10, 5, 2.5, 1.25, ... and determine the common ratio. Explain how you arrived at your answer.

Hint: Look at the relationship between consecutive terms.

The common ratio is 0.5, determined by dividing each term by the previous term.

Analyze the sequence 10, 5, 2.5, 1.25, ... and determine the common ratio. Explain how you arrived at your answer.

Hint: Consider the relationship between consecutive terms.

The common ratio is 0.5, found by dividing consecutive terms.

Analyze the sequence 10, 5, 2.5, 1.25, ... and determine the common ratio. Explain how you arrived at your answer.

Hint: Consider the relationship between consecutive terms.

The common ratio is 0.5, found by dividing consecutive terms.

Part 4: Evaluation and Creation

If the sum of the first 4 terms of a geometric sequence is 30 and the first term is 2, what is the common ratio?

Hint: Use the formula for the sum of a geometric series.

- 2 ✓
 3
 0.5
 1.5

■ The common ratio can be found using the sum formula for geometric sequences.

If the sum of the first 4 terms of a geometric sequence is 30 and the first term is 2, what is the common ratio?

Hint: Use the formula for the sum of a geometric series.

- A) 2
 B) 3 ✓
 C) 0.5
 D) 1.5

■ The common ratio is 3.

If the sum of the first 4 terms of a geometric sequence is 30 and the first term is 2, what is the common ratio?

Hint: Use the formula for the sum of a geometric series.

- A) 2
 C) 0.5
 D) 1.5
 C) 3 ✓

■ The common ratio is 3.

You are designing a sequence for a game that starts at 100 and halves each time. Which of the following are correct terms in your sequence? (Select all that apply)

Hint: Calculate the terms using the first term and common ratio.

- A) 50 ✓
 C) 12.5 ✓

D) 6.25 ✓

C) 25 ✓

■ The correct terms are A, B, C, and D.

You are designing a sequence for a game that starts at 100 and halves each time. Which of the following are correct terms in your sequence? (Select all that apply)

Hint: Calculate the terms using the first term and common ratio.

50 ✓

25 ✓

12.5 ✓

6.25 ✓

■ Terms can be found by repeatedly multiplying the first term by the common ratio.

You are designing a sequence for a game that starts at 100 and halves each time. Which of the following are correct terms in your sequence? (Select all that apply)

Hint: Calculate the terms using the first term and common ratio.

A) 50 ✓

B) 25 ✓

C) 12.5 ✓

D) 6.25 ✓

■ The correct terms are A, B, C, and D.

Create a geometric sequence where the sum of the first three terms is 21, and the common ratio is 2. Provide the sequence and explain your process.

Hint: Use the formula for the sum of a geometric series.

The sequence is 3, 6, 12, and the process involves solving for the first term.

Create a geometric sequence where the sum of the first three terms is 21, and the common ratio is 2. Provide the sequence and explain your process.

Hint: Use the properties of geometric sequences to find the terms.

The sequence can be 3, 6, 12, which sums to 21.

Create a geometric sequence where the sum of the first three terms is 21, and the common ratio is 2. Provide the sequence and explain your process.

Hint: Use the formula for the sum of a geometric series.

The sequence is 7, 14, 28.