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Geometric Sequence Worksheet

Geometric Sequence Worksheet

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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

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

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

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, ...

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

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, ...

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, ...

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.

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.

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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.

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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 nth term of a geometric sequence.

○ 15
○ 45
○ 30
○ 60

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 nth term to find the answer.

○ A) 15
○ B) 45
○ C) 30
○ D) 60

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

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

◯ A) 15
◯ C) 30
◯ D) 60
◯ C) 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.

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.

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.

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

Hint: Think about the implications of different common ratios.

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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.

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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.

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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

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◯ 486

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

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
◯ C) 162
◯ D) 486
◯ C) 54

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

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

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.

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☐ A) 2
☐ C) 0.5
☐ D) 0.25
☐ C) 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 of a geometric sequence.

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.

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.

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

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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

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

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

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.

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.

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☐ D) The sequence doubles with each term.

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.

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.

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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.

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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.

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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

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

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

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)

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

☐ A) 50
☐ C) 12.5
☐ D) 6.25
☐ C) 25

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

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

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.

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.

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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.

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