

GEOMETRIC SEQUENCE

What is a geometric sequence? Geometric sequences, an important branch of mathematics (see Statistics for learners), are listed in which each term is obtained by multiplying the previous one by a fixed non-zero number called the common ratio. They have a unique pattern, so they are indispensable in both the abstract mathematical world and practical applications. Put differently, a geometric sequence is like an integer chain with each link multiple of the one before it.

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Q1: State the difference between arithmetic sequence and geometric sequence.

A: Geometric sequences have a constant difference, while arithmetic sequences have a constant ratio.

B: Geometric sequences have a constant ratio, while arithmetic sequences have a constant difference.

C: Geometric sequences and arithmetic sequences are identical.

D: Geometric sequences have increasing terms, while arithmetic sequences have decreasing terms.

Q2: What is the sum formula for an infinite geometric series with a common ratio (r) less than 1?

A: $S = a / (1 - r)$

B: $S = a / (r - 1)$

C: $S = a * (1 - r)$

D: $S = a * (r - 1)$

Q3: In a geometric sequence, if the first term is 5 and the common ratio is 0.5, what is the third term?

A: 1.25

B: 2.5

C: 3.75

D: 6.25

Q4: In a geometric sequence, explain the common ratio.

A: The difference between consecutive terms.

B: The sum of the terms.

C: Previous term's ratio with any term

D: The mean of all the terms.

Q5: If the fifth term of a geometric sequence is 16, and the common ratio is 2, what's first?

A: 0.5

B: 1

C: 2

D: 4

Q6: What value does the sum of an infinite geometric series have when its common ratio (r) is equal to or approaches 1?

- A: The sum diverges to infinity.
 - B: The sum converges to a finite limit.
 - C: The sum becomes negative.
 - D: The sum becomes zero.
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Q7: What can be said about the terms in a geometric sequence when the common ratio is negative?

- A: All terms are negative.
 - B: Every other term is negative.
 - C: Terms are alternately positive and negative.
 - D: All terms are positive.
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Q8: For a geometric series to have a convergent sum, what is the condition?

- A: (r), which is the common ratio, should be more than 1.
 - B: r must be between -1 and 1.
 - C: The common ratio (r) must be negative.
 - D: The common ratio (r) must be an integer.
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Q9: What is the common ratio if the seventh term of a geometric progression equals 64, and its second term equals 2?

- A: 2
 - B: 4
 - C: 8
 - D: 16
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Q10: If the common ratio in a geometric sequence is 1, what type of sequence do you have?

- A: Increasing sequence.
 - B: Decreasing sequence.
 - C: Constant sequence.
 - D: Oscillating sequence.
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Answers

Q1: B - Geometric sequences have a constant ratio, while arithmetic sequences have a constant difference.

Q2: A - $S = a / (1 - r)$

Q3: C - 3.75

Q4: C - Previous term's ratio with any term

Q5: C - 2

Q6: B - The sum converges to a finite limit.

Q7: C - Terms are alternately positive and negative.

Q8: B - r must be between -1 and 1.

Q9: A - 2

Q10: C - Constant sequence.