

GEOMETRIC SEQUENCES OR PROGRESSIONS

1. In the following exercises state if a geometric sequence and give the common ratio.

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| a) 1, 3, 7, 15 | b) 1, 1, 1, 1 | c) 4, 2, 1, 1/2 |
| d) 1, 0, 1, 0 | e) -2, 2, -2, 2 | f) 3, 1, 1/3, 1/9 |
| g) 1, -1, 1, -1 | h) 1, 2, 4, 8 | i) a, abc, ab ² c ² |
| j) 1, 0, 0, 0 | k) 2, 4, 8, 16 | l) a - b, a, a + b |
| m) 8, -2, -1/8 | n) 1/9, 1/3, 1, 3 | o) 1/2, 1/4, 1/6, 1/8 |

2. State the first four terms of the given geometric sequence.

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| 1. $a = 1, r = 2$ | 2. $a = 27/4, r = 2/3$ |
| 3. $a = 1/2, r = -3$ | 4. $a = 8/25, r = 5/2$ |

3. Find the n th term of the indicated geometric sequence.

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| 1. $a = 3, r = -2, n = 5$ | 2. $a = 2, r = -1/9, n = 6$ |
| 3. $a = 15, r = -1, n = 21$ | 4. $a = -3, r = 1/4, n = 5$ |

4. Find the specified term in the given sequence.

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| 1. 8th, in 1/16, -1/8, 1/4, ... | 2. 9th, in 20, -2, 0.2, ... |
| 3. 6th, in 1, 4, 16, ... | 4. 7th, in 0.0003, 0.03, 3, ... |

5. Insert the indicated number of geometric means between the given numbers.

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| 1. two, between 1 and 125 | 2. three, between 3/25 and 25/27 |
| 3. two, between -2/9 and -18 | 4. three, between -5/8 and -2/125 |

6. Answer the following:

1. Which term in the geometric progression $1/24, -1/6, 2/3, \dots$ is $512/3$?
2. The first term of a geometric sequence is 162, the common ratio is $1/3$ and there is $a_n = 2/9$. What is the value of n ?
3. The fifth term of a geometric sequence is $3/4$ and the common ratio is $3/2$. What is the first term?
4. The seventh term of a geometric sequence is 1875 and the fifth term is 75. What is the first term?
5. If the fourth term of a geometric sequence is $5/3$ and the seventh term is $-625/81$, what is the third term?

7. Answer the following:

1. Find the first term of the geometric progression whose 6th and 7th terms are $32/9$ and $64/27$ respectively.
2. $2m - 8, 2m + 4, 5m - 2$ are successive terms of a geometric progression. Find the value of m .