12-1 Exercises

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Homework Help

GUIDED PRACTICE

1. **Vocabulary** What is the *common ratio* of a geometric sequence?

SEE EXAMPLE 1

Find the next three terms in each geometric sequence.

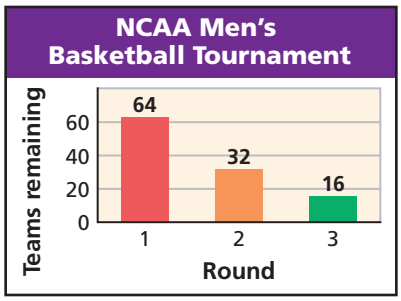
2. 2, 4, 8, 16, …
3. 400, 200, 100, 50, …
4. 4, −12, 36, −108, …

SEE EXAMPLE 2

5. The first term of a geometric sequence is 1, and the common ratio is 10. What is the 10th term of the sequence?
6. What is the 11th term of the geometric sequence 3, 6, 12, 24, … ?

SEE EXAMPLE 3

7. **Sports** In the NCAA men's basketball tournament, 64 teams compete in round 1. Fewer teams remain in each following round, as shown in the graph, until all but one team have been eliminated. The numbers of teams in each round form a geometric sequence. How many teams compete in round 5?



PRACTICE AND PROBLEM SOLVING

Independent Practice

For Exercises	See Example
8–13	1
14–15	2
16	3

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Online Extra Practice

Find the next three terms in each geometric sequence.

8. −2, 10, −50, 250, …
9. 32, 48, 72, 108, …
10. 625, 500, 400, 320, …
11. 6, 42, 294, …
12. 6, −12, 24, −48, …
13. 40, 10, $\frac{5}{2}$, $\frac{5}{8}$, …
14. The first term of a geometric sequence is 18 and the common ratio is 3.5. What is the 5th term of the sequence?
15. What is the 14th term of the geometric sequence 1000, 100, 10, 1, … ?
16. **Physical Science** A ball is dropped from a height of 500 meters. The table shows the height of each bounce, and the heights form a geometric sequence. How high does the ball bounce on the 8th bounce? Round your answer to the nearest tenth of a meter.

Bounce	Height (m)
1	400
2	320
3	256

Find the missing term(s) in each geometric sequence.

17. 20, 40, ___, ___, …
18. ___, 6, 18, ___, …
19. 9, 3, 1, ___, …
20. 3, 12, ___, 192, ___, …
21. 7, 1, ___, ___, $\frac{1}{343}$, …
22. ___, 100, 25, ___, $\frac{25}{16}$, …
23. −3, ___, −12, 24, ___, …
24. ___, ___, 1, −3, 9, …
25. 1, 17, 289, ___, …

Determine whether each sequence could be geometric. If so, give the common ratio.

26. 2, 10, 50, 250, …
27. 15, 5, $\frac{5}{3}$, $\frac{5}{9}$, …
28. 6, 18, 24, 38, …
29. 9, 3, −1, −5, …
30. 7, 21, 63, 189, …
31. 4, 1, −2, −4, …