VOCABULARY
1. Fill in the Blanks A geometric sequence is formed by __________ the previous term by a constant. The constant is called a ________________ or a __________.

SKILLS Objective C
In 2–12, give the first five terms of the geometric sequence described.

2. constant ratio 3, first term −1
3. constant ratio 4, first term 1
4. constant ratio 0.3, first term 8
5. constant ratio \( \frac{5}{4} \), first term 20
6. constant ratio −5, first term −5
7. constant ratio −0.1, first term 12
8. constant ratio \( \sqrt{2} \), first term \( \sqrt{2} \)
9. \( g_n = 10(3)^n - 1 \), for integers \( n \geq 1 \)
10. \( g_n = 2(-0.1)^n - 1 \), for integers \( n \geq 1 \)
11. \( g_n = 60\left(\frac{1}{2}\right)^n - 1 \), for integers \( n \geq 1 \)
12. \( \begin{cases} g_1 = -2 \\ g_n = 3g_{n-1} , \text{ for integers } n \geq 2 \end{cases} \)
13. A geometric sequence is defined recursively by
   \[ \begin{cases} g_1 = \frac{1}{2} \\ g_n = 6g_{n-1} , \text{ for integers } n \geq 2 \end{cases} \]
   Write an explicit definition for the sequence.
14. Multiple Choice Which of the following sequence(s) could be geometric?
   A  7, 21, 63, 189, ...
   B  8, 16, 24, 32 , ...
   C  \( \frac{3}{2}, \frac{3}{4}, \frac{3}{8}, \frac{3}{16}, \ldots \)
   D  \( \frac{9}{5}, \frac{13}{5}, \frac{17}{5}, \frac{21}{5}, \ldots \)
In 15–18, write a. recursive and b. explicit definitions for the geometric sequence.

15. 8, 88, 968, 10,648, ...
   a. ______________________
   b. ______________________

16. 12, -36, 108, -324, ...
   a. ______________________
   b. ______________________

17. \( \frac{3}{4}, \frac{3}{16}, \frac{3}{64}, \frac{3}{256}, ... \)
   a. ______________________
   b. ______________________

18. -2.5, 3.5, -4.9, 6.86, ...
   a. ______________________
   b. ______________________

In 19–21, find the tenth term of the geometric sequence described.

19. first term 20, constant ratio 0.9
   ______________________

20. \( g_n = 7(-2)^n - 1 \), for integers \( n \geq 1 \)
   ______________________

21. \( \begin{cases} g_1 = 4^2 \\ g_n = \frac{3}{2}g_{n-1} \end{cases} \), for all integers \( n \geq 2 \)
   ______________________

**USES**

Objective H

22. A car was sold for $22,000. If its value decreases 12% each year, what will be its value after 5 years?
   ______________________

23. After each bounce, a ball reaches 80% of its previous height. If it is originally dropped from a height of 6 feet, how high will it bounce after it hits the floor the 6th time? Round to the nearest hundredth of a foot.
   ______________________

24. The population in a certain county approximately doubled every decade from 1950 through 2000. If there were 1650 residents in 1950, about how many were there in 2000?
   ______________________

25. A sheet of a certain type of glass allows 90% of the light to pass through. How much light will pass through a triple thickness of this glass?
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