Name _____ Date _____

Practice: Section 7.3

Tell whether the sequence is geometric. *Explain* why or why not.

1. 2, 4, 8, 16, 32, . . .

2. 1, 10, 100, 1000, 10,000, . . .

3. 1, 3, 9, 27, 81, . . .

4. 16, 8, 2, 0.5, 0.125, . . .

5. $25, 5, 1, \frac{1}{5}, \frac{1}{25}, \ldots$

6. $\frac{3}{4}, \frac{1}{4}, \frac{1}{12}, \frac{1}{36}, \frac{1}{108}, \ldots$

Write a rule for the *n*th term of the geometric sequence. Then find a_6.

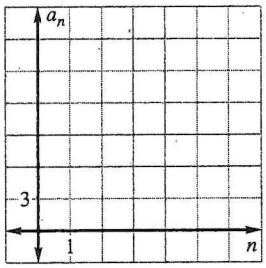
7. 4, 8, 16, 32, . . .

8. 5000, 500, 50, 5, . . .

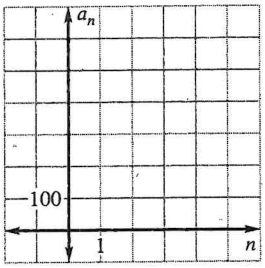
9. 3, 12, 48, 192, . . .

Write a rule for the *n*th term of the geometric sequence. Then graph the first five terms of the sequence.

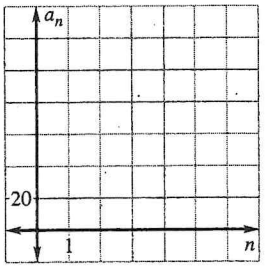
10. $r = 2, a_1 = 1$



11. $r = 3, a_2 = 15$



12. $r = \frac{2}{3}, a_2 = 54$



Write a rule for the *n*th term of the geometric sequence that has the two given terms.

13. $a_1 = 4, a_2 = 12$

14. $a_2 = 2, a_5 = 16$

15. $a_3 = -32, a_6 = -2048$

16. $a_3 = 1, a_6 = \frac{1}{27}$

17. $a_2 = 10, a_5 = 80$

18. $a_2 = 20, a_4 = \frac{5}{4}$

Find the sum of the geometric series.

19. $\sum_{i=1}^{6} 2(2)^{i-1}$

20. $\sum_{i=1}^{5} 1(3)^{i-1}$

21. $\sum_{i=1}^{8} 0.5(2)^{i-1}$

22. $\sum_{i=1}^{5} \frac{1}{1000}(10)^{i-1}$

23. $\sum_{i=1}^{5} 400\left(\frac{1}{2}\right)^{i-1}$

24. $\sum_{i=1}^{6} 1000\left(\frac{4}{5}\right)^{i-1}$

25. Production A company plans to increase production of a product by 10% each year over the next 12 years. The company will produce 70,000 units next year (year 1).

a. Write a rule giving the number of units produced by the company in year n.

b. Find the numbers of units produced in years 4, 8, and 12.

c. Find the total number of units produced over the next 12 years.