11-3 Practice

Geometric Sequences and Series

Find a_n for each geometric sequence.

1. $a_1 = 5, r = 3, n = 6$

2. $a_1 = 20, r = -3, n = 6$

3. $a_1 = -4, r = -2, n = 10$

4. a_8 for $-\dfrac{1}{250}, -\dfrac{1}{50}, -\dfrac{1}{10}, \ldots$

5. a_{12} for 96, 48, 24, ...

6. $a_1 = 8, r = \dfrac{1}{2}, n = 9$

7. $a_1 = -3125, r = -\dfrac{1}{5}, n = 9$

8. $a_1 = 3, r = \dfrac{1}{10}, n = 8$

Write an equation for the nth term of each geometric sequence.

9. 1, 4, 16, ...

10. $-1, -5, -25, \ldots$

11. $1, \dfrac{1}{2}, \dfrac{1}{4}, \ldots$

12. $-3, -6, -12, \ldots$

Find the sum of each geometric series.

13. $\displaystyle\sum_{k=3}^{10} (-4)(-2)^{k-1}$

14. $\displaystyle\sum_{k=1}^{8} (-3)(3)^{k-1}$

15. $\displaystyle\sum_{k=2}^{32} 9(-1)^{k-1}$

Find a_1 for each geometric series described.

16. $S_n = 1550, n = 3, r = 5$

17. $S_n = 1512, n = 6, r = 2$

18. $S_n = 3478.2, r = 2, a_n = 3481.6$

19. $S_n = 4860, r = 3, a_n = 3280.5$

20. BIOLOGY A culture initially contains 200 bacteria. If the number of bacteria doubles every 2 hours, how many bacteria will be in the culture at the end of 12 hours?

21. LIGHT If each foot of water in a lake screens out 60% of the light above, what percent of the light passes through 5 feet of water?

22. INVESTING Raul invests $1000 in a savings account that earns 5% interest compounded annually. How much money will he have in the account at the end of 5 years?