

11-4 Skills Practice

Geometric Series

Find S_n for each geometric series described.

1. $a_1 = 2, a_5 = 162, r = 3$

2. $a_1 = 4, a_6 = 12,500, r = 5$

3. $a_1 = 1, a_8 = -1, r = -1$

4. $a_1 = 4, a_n = 256, r = -2$

5. $a_1 = 1, a_n = 729, r = -3$

6. $a_1 = 2, r = -4, n = 5$

7. $a_1 = -8, r = 2, n = 4$

8. $a_1 = 3, r = -2, n = 12$

9. $a_1 = 8, r = 3, n = 5$

10. $a_1 = 6, a_n = \frac{3}{8}, r = \frac{1}{2}$

11. $a_1 = 8, r = \frac{1}{2}, n = 7$

12. $a_1 = 2, r = -\frac{1}{2}, n = 6$

Find the sum of each geometric series.

13. $4 + 8 + 16 + \dots$ to 5 terms

14. $-1 - 3 - 9 - \dots$ to 6 terms

15. $3 + 6 + 12 + \dots$ to 5 terms

16. $-15 + 30 - 60 + \dots$ to 7 terms

17. $\sum_{n=1}^4 3^{n-1}$

18. $\sum_{n=1}^5 (-2)^{n-1}$

19. $\sum_{n=1}^4 \left(\frac{1}{3}\right)^{n-1}$

20. $\sum_{n=1}^9 2(-3)^{n-1}$

Find the indicated term for each geometric series described.

21. $S_n = 1275, a_n = 640, r = 2; a_1$

22. $S_n = -40, a_n = -54, r = -3; a_1$

23. $S_n = 99, n = 5, r = -\frac{1}{2}; a_1$

24. $S_n = 39,360, n = 8, r = 3; a_1$