

Find the common ratio.

1. $4, 2, 1, \frac{1}{2}, \dots$
2. $10^2, 10^3, 10^4, \dots$
3. $-1, 2, -4, 8, \dots$
4. $1, -1, 1, -1, \dots$

Write the n^{th} term.

5. $\frac{1}{6}, \frac{1}{3}, \frac{2}{3}, \frac{4}{3}, \dots$
6. $.9, .09, .009, .0009$
7. $4, -12, 35, -108, \dots$

Find the sum.

8. $3 - 1 + \frac{1}{3} - \frac{1}{9} + \frac{1}{27} - \dots$
9. $.9 + .09 + .009 + .0009 + \dots$
10. $-9.9 + 3.3 - 1.1 + \dots$
11. $\sum_{k=1}^{\infty} 34(0.01)^k$

Use the geometric sum formula for S_n . Check by brute force.

12. $1.5 - 3 + 6 - 12 + 24 - 48 + 96 - 102$
13. $\sum_{k=1}^{12} 2(1.05)^{k-1}$ (\$2 per year, placed into an account earning 5% APR, compounded annually)
14. $\sum_{k=0}^7 200(1.01)^k$ (\$200 per year, placed into an account earning 1% APR, compounded annually)

Write the sum in \sum -notation.

15. $3 - 1 + \frac{1}{3} - \frac{1}{9} + \frac{1}{27}$
16. $.6 + .06 + .006 + .0006 + \dots$