

Geometric & Arithmetic Sequences and Series**Write the rule for the geometric sequence. Then, find the 8th term.**

1) 2, -12, 72, -432, ...

2) 3, 12, 48, 192, ...

3) 2, 4, 8, 16, ...

Write the first 5 terms of the geometric sequence.

4) $a_1 = -3$, $r = 6$

5) $a_1 = -4$, $r = -6$

6) $a_1 = 4$, $r = -3$

Write the rule for each arithmetic sequence. Then, find the 52nd term.

7) 22, 19, 16, 13, ...

8) -15, -24, -33, -42, ...

9) -3, 5, 13, 21, ...

Write the first 5 terms of each arithmetic sequence.

10) $a_n = -55 + 30n$

11) $a_n = 3 - 7n$

12) $a_n = 9 - 9n$

Find the sum of each geometric sequence.

13) $\sum_{n=1}^{\infty} 5 \cdot \left(\frac{1}{3}\right)^{n-1}$

14) $\sum_{n=1}^{\infty} 25 \cdot \left(-\frac{2}{5}\right)^{n-1}$

15) $\sum_{n=1}^{\infty} \frac{5}{3} \cdot \left(\frac{1}{2}\right)^{n-1}$

For #s 16-18, Find the partial sum of each arithmetic sequence. For #s 19-21, find the nth partial sum of each sequence.

16) $\sum_{n=1}^{10} (6n - 5)$

17) $\sum_{n=1}^{50} (7n + 2)$

18) $\sum_{n=1}^{14} 10n$

19) $35 + 44 + 53 + 62 \dots$, $n = 18$

20) $(-24) + (-31) + (-38) + (-45) \dots$, $n = 11$

21) $49 + 59 + 69 + 79 \dots$, $n = 7$

Solve each. Show all work.

22.) $x^3 - 2x^2 - 9x - 2 \geq -20$

23.) $\frac{7x+5}{2x+1} < 4$