

Determine if each sequence is arithmetic, geometric, or neither. Justify your answer.

1. 35, 32, 29, 26, ...

arithmetic
 $d = -3$

2. 1, 8, 27, 64, 125, ...

neither
 $a_n = n^3$

3. -1, 6, -36, 216, ...

geometric
 $r = -6$

2. Given the explicit formula for the arithmetic sequence, find the first five terms and the 34th term.

$$a_n = -11 + 7n$$

$$-4, 3, 10, 17, 24$$

$$a_{34} = 227$$

3. Given $a_1 = 28$ and $d = 10$, find the first five terms and the explicit formula for the arithmetic sequence.

$$28, 38, 48, 58, 68$$

$$a_n = 28 + 10(n-1) = 10n + 18$$

4. Given $a_{38} = -53.2$ and $d = -1.1$, find the first five terms and the explicit formula for the arithmetic sequence.

$$-12.5, -13.6, -14.7, -15.8, -16.7$$

$$a_n = -1.1n - 11.4$$

5. Given $a_1 = \frac{3}{5}$ and $d = -\frac{1}{3}$, find the recursive formula and the next three terms in the arithmetic sequence.

$$a_1 = \frac{3}{5}$$

$$a_n = a_{n-1} + -\frac{1}{3}$$

$$\frac{4}{15}, -\frac{1}{15}, -\frac{2}{5}$$

6. Given $a_{21} = -1.4$ and $d = 0.6$, find the recursive formula and the next three terms in the arithmetic sequence.

$$a_1 = -13.4$$

$$a_n = a_{n-1} + 0.6$$

$$-0.8, -0.2, 0.4$$

7. Given $a_{18} = 3362$ and $a_{38} = 7362$, find the recursive formula for the arithmetic sequence.

$$a_1 = -38$$

$$a_n = a_{n-1} + 200$$

8. Given the explicit formula for the geometric sequence, find the first five terms and the 8th term.

$$a_n = 3^{n-1}$$

$$1, 3, 9, 27, 81$$

$$a_8 = 2187$$

9. Given the recursive formula, find the common ratio, the first five terms, and the explicit formula for the geometric sequence.

$$a_n = a_{n-1} \cdot 2$$

$$r = 2$$

$$a_1 = 2$$

$$2, 4, 8, 16, 32$$

$$a_n = 2(2)^{n-1}$$

10. Given $a_1 = 0.8$ and $r = -5$, find the first five terms and the explicit formula for the geometric sequence.

$$0.8, -4, 20, -100, 500$$

$$a_n = 0.8(-5)^{n-1}$$

11. Given $a_1 = -4$ and $r = 6$, find the recursive formula and the next 3 terms for the geometric sequence.

$$a_1 = -4$$

$$a_n = a_{n-1} \cdot 6$$

$$-24, -144, -864$$

12. Given $a_4 = 25$ and $r = -5$, find the first five terms, the explicit formula and the recursive formula for the geometric sequence.

$$-0.2, 1, -5, 25, -125$$

$$a_n = -0.2(-5)^{n-1}$$

$$a_1 = -0.2$$

$$a_n = a_{n-1} \cdot -5$$

13. Given $a_4 = -12$ and $a_5 = -6$, find the 8th term and the recursive formula for the geometric sequence.

$$a_8 = -0.75$$

$$a_1 = -96$$

$$a_n = \frac{1}{2} \cdot a_{n-1}$$