

Introduction to Sequences

Find the next three terms in each sequence.

1) 1, -3, 9, -27, 81, ...

2) 9, 109, 209, 309, 409, ...

3) 0, 3, 8, 15, 24, ...

4) $\frac{1}{2}, \frac{1}{2}, \frac{3}{8}, \frac{1}{4}, \frac{5}{32}, \dots$

5) 4, 16, 36, 64, 100, ...

6) 14, 34, 54, 74, 94, ...

7) $5, \frac{5}{2}, \frac{5}{4}, \frac{5}{8}, \frac{5}{16}, \dots$

8) -9, 101, -999, 10001, -99999, ...

Find the tenth term in each sequence.

9) $-1, \frac{2}{3}, \frac{7}{3}, 4, \frac{17}{3}, \dots$

10) 7, 9, 12, 16, 21, ...

11) -2, -6, -18, -54, -162, ...

12) -23, -18, -13, -8, -3, ...

13) -4, 12, -36, 108, -324, ...

14) -6, -2, 0, 1, $\frac{3}{2}, \dots$

15) -28, 172, 372, 572, 772, ...

16) 37, 46, 55, 64, 73, ...

Find the first four terms in each sequence.

17) $a_n = \frac{2n+1}{n^3}$

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

19) $a_n = n^2 + 1$

20) $a_n = \frac{n^3}{2n+1}$

Find the tenth term in each sequence.

21) $a_n = \frac{2n+1}{n^3}$

22) $a_n = 4^{n-1}$

23) $a_n = (2n)^2$

24) $a_n = (2n-1)^2$

Find the first four terms in each sequence.

25) $a_n = a_{n-1} + 10$
 $a_1 = 29$

26) $a_n = a_{n-1} \cdot 2$
 $a_1 = -1$

27) $a_n = a_{n-1} + n$
 $a_1 = -4$

28) $a_n = \frac{2 + a_{n-1}}{2}$
 $a_1 = 10$

Find the tenth term in each sequence.

29) $a_n = na_{n-1}$
 $a_1 = -1$

30) $a_n = a_{n-1} + 10$
 $a_1 = 11$

31) $a_n = a_{n-1} \cdot 3$
 $a_1 = -3$

32) $a_n = \frac{2 + a_{n-1}}{2}$
 $a_1 = -14$

Write the explicit formula for each sequence.

33) $-12, -9, -6, -3, 0, \dots$

34) $-6, -3, -2, -\frac{3}{2}, -\frac{6}{5}, \dots$

Write the recursive formula for each sequence.

35) $2, 4, 7, 11, 16, \dots$

36) $15, 215, 415, 615, 815, \dots$

Arithmetic Sequences

Date_____ Period_____

Determine if the sequence is arithmetic. If it is, find the common difference.

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

2) -3, -23, -43, -63, ...

3) -34, -64, -94, -124, ...

4) -30, -40, -50, -60, ...

5) -7, -9, -11, -13, ...

6) 9, 14, 19, 24, ...

Given the explicit formula for an arithmetic sequence find the first five terms and the term named in the problem.

7) $a_n = -11 + 7n$
Find a_{34}

8) $a_n = 65 - 100n$
Find a_{39}

9) $a_n = -7.1 - 2.1n$
Find a_{27}

10) $a_n = \frac{11}{8} + \frac{1}{2}n$
Find a_{23}

Given the first term and the common difference of an arithmetic sequence find the first five terms and the explicit formula.

11) $a_1 = 28, d = 10$

12) $a_1 = -38, d = -100$

13) $a_1 = -34, d = -10$

14) $a_1 = 35, d = 4$

Given a term in an arithmetic sequence and the common difference find the first five terms and the explicit formula.

15) $a_{38} = -53.2$, $d = -1.1$

16) $a_{40} = -1191$, $d = -30$

17) $a_{37} = 249$, $d = 8$

18) $a_{36} = -276$, $d = -7$

Given the first term and the common difference of an arithmetic sequence find the recursive formula and the three terms in the sequence after the last one given.

19) $a_1 = \frac{3}{5}$, $d = -\frac{1}{3}$

20) $a_1 = 39$, $d = -5$

21) $a_1 = -26$, $d = 200$

22) $a_1 = -9.2$, $d = 0.9$

Given a term in an arithmetic sequence and the common difference find the recursive formula and the three terms in the sequence after the last one given.

23) $a_{21} = -1.4$, $d = 0.6$

24) $a_{22} = -44$, $d = -2$

25) $a_{18} = 27.4$, $d = 1.1$

26) $a_{12} = 28.6$, $d = 1.8$

Given two terms in an arithmetic sequence find the recursive formula.

27) $a_{18} = 3362$ and $a_{38} = 7362$

28) $a_{18} = 44.3$ and $a_{33} = 84.8$