

## Arithmetic Sequences

**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  $a_{33} = 84.8$

## Arithmetic Sequences

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

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

$d = -3$

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

$d = -20$

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

$d = -30$

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

$d = -10$

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

$d = -2$

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

$d = 5$

**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  $a_{34}$ 

First Five Terms: -4, 3, 10, 17, 24

$a_{34} = 227$

8)  $a_n = 65 - 100n$

Find  $a_{39}$ 

First Five Terms: -35, -135, -235, -335, -435

$a_{39} = -3835$

9)  $a_n = -7.1 - 2.1n$

Find  $a_{27}$ 

First Five Terms: -9.2, -11.3, -13.4, -15.5, -17.6

$a_{27} = -63.8$

10)  $a_n = \frac{11}{8} + \frac{1}{2}n$  First Five Terms:  $\frac{15}{8}, \frac{19}{8}, \frac{23}{8}, \frac{27}{8}, \frac{31}{8}$

Find  $a_{23}$ 

$a_{23} = \frac{103}{8}$

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

11)  $a_1 = 28, d = 10$

First Five Terms: 28, 38, 48, 58, 68

Explicit:  $a_n = 18 + 10n$

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

First Five Terms: -38, -138, -238, -338, -438

Explicit:  $a_n = 62 - 100n$

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

First Five Terms: -34, -44, -54, -64, -74

Explicit:  $a_n = -24 - 10n$

14)  $a_1 = 35, d = 4$

First Five Terms: 35, 39, 43, 47, 51

Explicit:  $a_n = 31 + 4n$

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

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

First Five Terms:  $-12.5, -13.6, -14.7, -15.8, -16.9$   
 Explicit:  $a_n = -11.4 - 1.1n$

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

First Five Terms:  $-21, -51, -81, -111, -141$   
 Explicit:  $a_n = 9 - 30n$

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

First Five Terms:  $-39, -31, -23, -15, -7$   
 Explicit:  $a_n = -47 + 8n$

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

First Five Terms:  $-31, -38, -45, -52, -59$   
 Explicit:  $a_n = -24 - 7n$

**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)  $a_1 = \frac{3}{5}, d = -\frac{1}{3}$  Next 3 terms:  $\frac{4}{15}, -\frac{1}{15}, -\frac{2}{5}$

Recursive:  $a_n = a_{n-1} - \frac{1}{3}$   
 $a_1 = \frac{3}{5}$

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

Next 3 terms:  $34, 29, 24$   
 Recursive:  $a_n = a_{n-1} - 5$   
 $a_1 = 39$

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

Next 3 terms:  $174, 374, 574$   
 Recursive:  $a_n = a_{n-1} + 200$   
 $a_1 = -26$

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

Next 3 terms:  $-8.3, -7.4, -6.5$   
 Recursive:  $a_n = a_{n-1} + 0.9$   
 $a_1 = -9.2$

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

Next 3 terms:  $-0.8, -0.2, 0.4$   
 Recursive:  $a_n = a_{n-1} + 0.6$   
 $a_1 = -13.4$

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

Next 3 terms:  $-46, -48, -50$   
 Recursive:  $a_n = a_{n-1} - 2$   
 $a_1 = -2$

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

Next 3 terms:  $28.5, 29.6, 30.7$   
 Recursive:  $a_n = a_{n-1} + 1.1$   
 $a_1 = 8.7$

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

Next 3 terms:  $30.4, 32.2, 34$   
 Recursive:  $a_n = a_{n-1} + 1.8$   
 $a_1 = 8.8$

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

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

$a_n = a_{n-1} + 200$   
 $a_1 = -38$

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

$a_n = a_{n-1} + 2.7$   
 $a_1 = -1.6$