

## 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 Series

Evaluate the related series of each sequence.

1) 13, 15, 17, 19, 21, 23

2) 6, 11, 16, 21, 26, 31, 36

3) 22, 28, 34, 40, 46

4) 39, 49, 59, 69

Evaluate each arithmetic series described.

5)  $\sum_{k=1}^{35} (5k - 2)$

6)  $\sum_{i=1}^{35} (3i - 13)$

7)  $\sum_{m=1}^{15} 4m$

8)  $\sum_{m=1}^{10} (7m - 2)$

9)  $\sum_{i=1}^6 3i$

10)  $\sum_{n=1}^{45} (3n - 9)$

11)  $a_1 = 42, a_n = 146, n = 14$

12)  $a_1 = 4, a_n = 22, n = 10$

13)  $a_1 = 2, a_n = 122, n = 13$

14)  $a_1 = -18, a_n = -102, n = 13$

15)  $20 + 27 + 34 + 41\dots, n = 16$

16)  $20 + 30 + 40 + 50\dots, n = 15$

17)  $7 + 9 + 11 + 13\dots, n = 10$

18)  $10 + 12 + 14 + 16\dots, n = 11$

**Determine the number of terms  $n$  in each arithmetic series.**

19)  $a_1 = 19, a_n = 96, S_n = 690$

20)  $a_1 = 16, a_n = 163, S_n = 4475$

21)  $a_1 = 19, a_n = 118, S_n = 822$

22)  $a_1 = 15, a_n = 79, S_n = 423$

23)  $a_1 = -3, d = 2, S_n = 21$

24)  $a_1 = 4, d = 7, S_n = 228$

25)  $(-2) + (-12) + (-22) + (-32)\dots, S_n = -224$

26)  $(-16) + (-26) + (-36) + (-46)\dots, S_n = -1818$