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
   \[ a_{34} = 227 \]
   \[ a_{34} = \frac{11}{8} + \frac{1}{2}n \]

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
   \[ a_{27} = -63.8 \]

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) \( a_3 = -53.2, \ d = -1.1 \)

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) \( a_{32} = -44, \ d = -2 \)

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 \( a_{33} = 84.8 \)

\( a_n = a_{n-1} + 2.7 \)
\( a_1 = -1.6 \)