Practice Worksheet: Writing Explicit Formulas For Arithmetic Sequences

State the common difference. Find the next 3 terms.

1) \(-18, -26, -34, -42, \ldots\)  
2) \(22, 28, 34, 40, \ldots\)

3) \(16, 26, 36, 46, \ldots\)  
4) \(22, 13, 4, -5, \ldots\)

5) \(3, 33, 63, 93, \ldots\)  
6) \(5, -4, -13, -22, \ldots\)

Find the common difference. Write the closed explicit formula. Use your formula to find the value of the term given.

7) \(26, -74, -174, -274, \ldots\) Find \(a_{31}\)  
8) \(-12, -2, 8, 18, \ldots\) Find \(a_{26}\)

9) \(-8, -208, -408, -608, \ldots\) Find \(a_{34}\)  
10) \(7, 17, 27, 37, \ldots\) Find \(a_{29}\)

11) \(33, 233, 433, 633, \ldots\) Find \(a_{32}\)  
12) \(37, 7, -23, -53, \ldots\) Find \(a_{25}\)
State the common difference. Find the next 3 terms.

1) \(-18, -26, -34, -42, \ldots\)
   - Common Difference: \(d = -8\)
   - Next 3 terms: \(-50, -58, -66\)

2) \(22, 28, 34, 40, \ldots\)
   - Common Difference: \(d = 6\)
   - Next 3 terms: \(46, 52, 58\)

3) \(16, 26, 36, 46, \ldots\)
   - Common Difference: \(d = 10\)
   - Next 3 terms: \(56, 66, 76\)

4) \(22, 13, 4, -5, \ldots\)
   - Common Difference: \(d = -9\)
   - Next 3 terms: \(-14, -23, -32\)

5) \(3, 33, 63, 93, \ldots\)
   - Common Difference: \(d = 30\)
   - Next 3 terms: \(123, 153, 183\)

6) \(5, -4, -13, -22, \ldots\)
   - Common Difference: \(d = -9\)
   - Next 3 terms: \(-31, -40, -49\)

Find the common difference. Write the closed explicit formula. Use your formula to find the value of the term given.

7) \(26, -74, -174, -274, \ldots\)
   - Find \(a_{31}\)
     - Common Difference: \(d = -100\)
     - \(a_{31} = -2974\)
     - Explicit: \(a_n = 126 - 100n\)
   - Find \(a_{26}\)
     - Common Difference: \(d = 10\)
     - \(a_{26} = 238\)
     - Explicit: \(a_n = -22 + 10n\)

8) \(-12, -2, 8, 18, \ldots\)
   - Find \(a_{26}\)
     - Common Difference: \(d = 10\)
     - \(a_{26} = 238\)
     - Explicit: \(a_n = -22 + 10n\)

9) \(-8, -208, -408, -608, \ldots\)
   - Find \(a_{34}\)
     - Common Difference: \(d = -200\)
     - \(a_{34} = -6608\)
     - Explicit: \(a_n = 192 - 200n\)

10) \(7, 17, 27, 37, \ldots\)
    - Find \(a_{29}\)
      - Common Difference: \(d = 10\)
      - \(a_{29} = 287\)
      - Explicit: \(a_n = -3 + 10n\)

11) \(33, 233, 433, 633, \ldots\)
    - Find \(a_{32}\)
      - Common Difference: \(d = 200\)
      - \(a_{32} = 6233\)
      - Explicit: \(a_n = -167 + 200n\)

12) \(37, 7, -23, -53, \ldots\)
    - Find \(a_{25}\)
      - Common Difference: \(d = -30\)
      - \(a_{25} = -683\)
      - Explicit: \(a_n = 67 - 30n\)