Homework 4.1 Arithmetic Sequences

Generalize the sequence. Identify whether it is a common difference and use symbols to express the generalization.

Example — 5, 10, 15, 20, 25, 30, … Answer: Adding 5, d = 5.

1) 30, 40, 50, 60, 70, 80, 90, … Answer: _____

2) 2, 3, 4, 5, 6, 7, … Answer: _____

3) -3, -7, -11, -15, -19, -23, -27, -31, … Answer: _____

4) 90, 110, 130, 150, 170, 190, 210, 230, … Answer: _____

5) -2, -4, -6, -8, -10, -12, -14, -16, -18, -20, … Answer: _____

Identify the a_3, a_5, and a_{12} terms in each sequence

6) 30, 40, 50, 60, 70, 80, 90, …

7) 2, 3, 4, 5, 6, 7, …

8) -3, -7, -11, -15, -19, -23, -27, -31, …

9) 90, 110, 130, 150, 170, 190, 210, 230, …

10) -2, -4, -6, -8, -10, -12, -14, -16, -18, -20, …

Write the recursive formula for each sequence. *Formula:* $a_1 = \_\_, a_n = a_{n-1} + d$

11) 30, 40, 50, 60, 70, 80, 90, …

12) 2, 3, 4, 5, 6, 7, …

13) -3, -7, -11, -15, -19, -23, -27, -31, …

14) 90, 110, 130, 150, 170, 190, 210, 230, …

15) -2, -4, -6, -8, -10, -12, -14, -16, -18, -20, …

Write the explicit formula for each sequence and find a_{50}. *Formula:* $a_n = dn + a_0$

16) 30, 40, 50, 60, 70, 80, 90, …

17) 2, 3, 4, 5, 6, 7, …

18) -3, -7, -11, -15, -19, -23, -27, -31, …

19) 90, 110, 130, 150, 170, 190, 210, 230, …

20) -2, -4, -6, -8, -10, -12, -14, -16, -18, -20, ...

Using the recursive formula, find the explicit formula.

21) $a_1 = 4, a_n = a_{n-1} - 5$

22) $a_1 = -2,\ a_n = a_{n-1} + 7$

23) $a_1 = 3,\ a_n = a_{n-1} + 11$

Using the explicit formula, find the recursive formula.

24) $a_n = 4n + 5$

25) $a_n = -3n + 10$

26) $a_n = 8n - 9$

27) $a_n = -100n + 50$