

# Arithmetic Sequences

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**Determine if the sequence is arithmetic. If it is, find the common difference, the explicit formula, and the recursive formula.**

1) 0, 5, 10, 15, ...

2) -2, -6, -18, -54, ...

3) -7, -1, 5, 11, ...

4) -22, -14, -6, 2, ...

5) -14, -17, -20, -23, ...

6) -20, -25, -30, -35, ...

7) 1, -1, -3, -5, ...

8) 4, 8, 12, 16, ...

9) 4, 16, 36, 64, ...

10) -2, 1, 6, 13, ...

11) 38, 30, 22, 14, ...

12) 1, -8, -17, -26, ...

13) -1, 1, -1, 1, ...

14) 30, 40, 50, 60, ...

15) 22, 31, 40, 49, ...

16) 8, 10, 13, 17, ...

17) -14, -12, -10, -8, ...

18) -37, -43, -49, -55, ...

## Answers to Arithmetic Sequences

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| 1) Common Difference: $d = 5$<br>Explicit: $a_n = -5 + 5n$<br>Recursive: $a_n = a_{n-1} + 5$<br>$a_1 = 0$    | 2) Not arithmetic  | 3) Common Difference: $d = 6$<br>Explicit: $a_n = -13 + 6n$<br>Recursive: $a_n = a_{n-1} + 6$<br>$a_1 = -7$    |
| 4) Common Difference: $d = 8$<br>Explicit: $a_n = -30 + 8n$<br>Recursive: $a_n = a_{n-1} + 8$<br>$a_1 = -22$ | 5) Common Difference: $d = -3$<br>Explicit: $a_n = -11 - 3n$<br>Recursive: $a_n = a_{n-1} - 3$<br>$a_1 = -14$  | 6) Common Difference: $d = -5$<br>Explicit: $a_n = -15 - 5n$<br>Recursive: $a_n = a_{n-1} - 5$<br>$a_1 = -20$  |
| 7) Common Difference: $d = -2$<br>Explicit: $a_n = 3 - 2n$<br>Recursive: $a_n = a_{n-1} - 2$<br>$a_1 = 1$    | 8) Common Difference: $d = 4$<br>Explicit: $a_n = 4n$<br>Recursive: $a_n = a_{n-1} + 4$<br>$a_1 = 4$           | 9) Not arithmetic  |
| 10) Not arithmetic   | 11) Common Difference: $d = -8$<br>Explicit: $a_n = 46 - 8n$<br>Recursive: $a_n = a_{n-1} - 8$<br>$a_1 = 38$   | 12) Common Difference: $d = -9$<br>Explicit: $a_n = 10 - 9n$<br>Recursive: $a_n = a_{n-1} - 9$<br>$a_1 = 1$    |
| 13) Not arithmetic   | 14) Common Difference: $d = 10$<br>Explicit: $a_n = 20 + 10n$<br>Recursive: $a_n = a_{n-1} + 10$<br>$a_1 = 30$ | 15) Common Difference: $d = 9$<br>Explicit: $a_n = 13 + 9n$<br>Recursive: $a_n = a_{n-1} + 9$<br>$a_1 = 22$    |
| 16) Not arithmetic   | 17) Common Difference: $d = 2$<br>Explicit: $a_n = -16 + 2n$<br>Recursive: $a_n = a_{n-1} + 2$<br>$a_1 = -14$  | 18) Common Difference: $d = -6$<br>Explicit: $a_n = -31 - 6n$<br>Recursive: $a_n = a_{n-1} - 6$<br>$a_1 = -37$ |