

Arithmetic Sequences & Series

Find the common difference, the term named in the problem, the explicit formula, and the recursive formula.

1) 40, 35, 30, 25, ...

Find a_{39}

2) -40, -10, 20, 50, ...

Find a_{21}

3) 22, 24, 26, 28, ...

Find a_{38}

4) 24, 15, 6, -3, ...

Find a_{37}

Given a term in an arithmetic sequence and the common difference find the explicit formula and the recursive formula.

5) $a_{11} = -113, d = -8$

6) $a_{27} = 5225, d = 200$

7) $a_{21} = 390, d = 20$

8) $a_{37} = 161, d = 4$

Given two terms in an arithmetic sequence find the explicit formula and the recursive formula.

9) $a_{17} = -130$ and $a_{33} = -290$

10) $a_{20} = 1928$ and $a_{31} = 3028$

Evaluate each arithmetic series described.

11) $a_1 = -6$, $a_n = -46$, $n = 5$

12) $a_1 = 27$, $a_n = 197$, $n = 35$

13) $a_1 = -11$, $a_n = -27$, $n = 5$

14) $(-32) + (-39) + (-46) + (-53)\dots$, $n = 15$

15) $33 + 43 + 53 + 63\dots$, $n = 20$

16) $23 + 33 + 43 + 53\dots$, $n = 11$

17) $\sum_{i=1}^{45} (10i - 16)$

18) $\sum_{k=1}^{45} (4 - 10k)$

19) $\sum_{i=1}^{35} (3i - 2)$

Answers to Arithmetic Sequences & Series

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|--|---|---|-----------|
| 1) Common Difference: $d = -5$
$a_{39} = -150$
Explicit: $a_n = 45 - 5n$
Recursive: $a_n = a_{n-1} - 5$
$a_1 = 40$ | 2) Common Difference: $d = 30$
$a_{21} = 560$
Explicit: $a_n = -70 + 30n$
Recursive: $a_n = a_{n-1} + 30$
$a_1 = -40$ | 3) Common Difference: $d = 2$
$a_{38} = 96$
Explicit: $a_n = 20 + 2n$
Recursive: $a_n = a_{n-1} + 2$
$a_1 = 22$ | |
| 4) Common Difference: $d = -9$
$a_{37} = -300$
Explicit: $a_n = 33 - 9n$
Recursive: $a_n = a_{n-1} - 9$
$a_1 = 24$ | 5) Explicit: $a_n = -25 - 8n$
Recursive: $a_n = a_{n-1} - 8$
$a_1 = -33$ | 6) Explicit: $a_n = -175 + 200n$
Recursive: $a_n = a_{n-1} + 200$
$a_1 = 25$ | |
| 7) Explicit: $a_n = -30 + 20n$
Recursive: $a_n = a_{n-1} + 20$
$a_1 = -10$ | 8) Explicit: $a_n = 13 + 4n$
Recursive: $a_n = a_{n-1} + 4$
$a_1 = 17$ | 9) Explicit: $a_n = 40 - 10n$
Recursive: $a_n = a_{n-1} - 10$
$a_1 = 30$ | |
| 10) Explicit: $a_n = -72 + 100n$
Recursive: $a_n = a_{n-1} + 100$
$a_1 = 28$ | 11) -130 | 12) 3920 | |
| 13) -95
17) 9630 | 14) -1215
18) -10170 | 15) 2560
19) 1820 | 16) 803 |