

6

Explicit

Recursive

$$a_n = a_1 + d(n-1)$$

$$a_n = a_{n-1} + d$$

Arithmetic

Problems

List the first five terms of each arithmetic sequence.

1. $a_n = 5n - 2$

$a_1 = 3$
 $a_2 = 8$
 $a_3 = 13$
 $a_4 = 18$
 $a_5 = 23$

2. $b_n = -3n + 5$

$b_1 = 2$
 $b_2 = -1$
 $b_3 = -4$
 $b_4 = -7$
 $b_5 = -10$

3. $a_n = -15 + \frac{1}{2}n$

$a_1 = -14.5$
 $a_2 = -14$
 $a_3 = -13.5$
 $a_4 = -13$
 $a_5 = -12.5$

4. $c_n = 5 + 3(n-1)$

$c_1 = 5$
 $c_2 = 8$
 $c_3 = 11$
 $c_4 = 14$
 $c_5 = 17$

For each arithmetic sequence, find an explicit and a recursive formula.

E: $a_n = a_1 + (n-1)d$
R:

5. $4, 8, 12, 16, 20, \dots$

$a_1 = 4$ $d = 4$

$a_n = 4 + 4(n-1)$

$a_n = 4 + 4n - 4$

$a_n = 4n$

$a_n = a_{n-1} + 4$

6. $-2, 5, 12, 19, 26, \dots$

$a_1 = -2$ $d = 7$

$a_n = -2 + 7(n-1)$

$a_n = -2 + 7n - 7$

$a_n = 7n - 9$

$a_n = a_{n-1} + 7$

7. $27, 15, 3, -9, -21, \dots$

$a_1 = 27$ $d = -12$

$a_n = a_{n-1} - 12$

$a_n = 27 - 12(n-1)$

$a_n = 27 - 12n + 12$

$a_n = 39 - 12n$

8. $3, 3\frac{1}{3}, 3\frac{2}{3}, 4, 4\frac{1}{3}, \dots$

$a_1 = 3$ $d = \frac{1}{3}$

$a_n = a_{n-1} + \frac{1}{3}$

$a_n = 3 + \frac{1}{3}(n-1)$

$a_n = 3 + \frac{1}{3}n - \frac{1}{3}$

$a_n = 2\frac{2}{3} + \frac{1}{3}n$

$a_n = \frac{1}{3}n + 2\frac{2}{3}$