

Find the first four terms in each sequence.

1) $a_n = \frac{n^2}{2n + 1}$

2) $a_n = (2n)^2$

3) $a_n = 173 - 200n$

4) $a_n = (2n - 1)^2$

For each arithmetic sequence, find the term named in the problem, the explicit formula, and the recursive formula.

5) $-3, -10, -17, -24, \dots$
Find a_{32}

6) $-9, -6, -3, 0, \dots$
Find a_{39}

7) $9, -1, -11, -21, \dots$
Find a_{29}

8) $-37, -35, -33, -31, \dots$
Find a_{40}

Given the first term and the common difference of an arithmetic sequence find explicit rule and the 37th term.

9) $a_1 = 24, d = 5$

10) $a_1 = 0, d = -3$

11) $a_1 = -32, d = 20$

12) $a_1 = 12, d = 10$

Given a term in an arithmetic sequence and the common difference find the 52nd term and the explicit formula.

13) $a_{32} = 622, d = 20$

14) $a_{18} = -166, d = -8$

15) $a_9 = 74, d = 6$

16) $a_{28} = -231, d = -10$

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

17) $a_{16} = 105$ and $a_{30} = 203$

18) $a_{17} = -95$ and $a_{38} = -200$

19) $a_{17} = 130$ and $a_{33} = 274$

20) $a_{12} = -138$ and $a_{30} = -318$

Write the recursive formula for each sequence.

21) $-3, -18, -108, -648, -3888, \dots$

22) $-1, 3, -9, 27, -81, \dots$

23) $2, -8, 32, -128, 512, \dots$

24) $1250, -250, 50, -10, 2, \dots$

Answers to

1) $\frac{1}{3}, \frac{4}{5}, \frac{9}{7}, \frac{16}{9}$

2) 4, 16, 36, 64

3) -27, -227, -427, -627

4) 1, 9, 25, 49

5) $a_{32} = -220$

Explicit: $a_n = -3 + (n-1) \cdot -7$

Recursive: $a_n = a_{n-1} - 7$

$a_1 = -3$

6) $a_{39} = 105$

Explicit: $a_n = -9 + (n-1) \cdot 3$

Recursive: $a_n = a_{n-1} + 3$

$a_1 = -9$

7) $a_{29} = -271$

Explicit: $a_n = 9 + (n-1) \cdot -10$

Recursive: $a_n = a_{n-1} - 10$

$a_1 = 9$

8) $a_{40} = 41$

Explicit: $a_n = -37 + (n-1) \cdot 2$

Recursive: $a_n = a_{n-1} + 2$

$a_1 = -37$

9) $a_{52} = 279$

Explicit: $a_n = 19 + 5n$

10) $a_{52} = -153$

Explicit: $a_n = 3 - 3n$

11) $a_{52} = 988$

Explicit: $a_n = -52 + 20n$

12) $a_{52} = 522$

Explicit: $a_n = 2 + 10n$

13) $a_{52} = 1022$

Explicit: $a_n = -18 + 20n$

14) $a_{52} = -438$

Explicit: $a_n = -22 - 8n$

15) $a_{52} = 332$

Explicit: $a_n = 20 + 6n$

16) $a_{52} = -471$

Explicit: $a_n = 49 - 10n$

17) $a_{52} = 357$

Explicit: $a_n = -7 + 7n$

18) $a_{52} = -270$

Explicit: $a_n = -10 - 5n$

19) $a_{52} = 445$

Explicit: $a_n = -23 + 9n$

20) $a_{52} = -538$

Explicit: $a_n = -18 - 10n$

21) $a_n = a_{n-1} \cdot 6$

$a_1 = -3$

22) $a_n = a_{n-1} \cdot -3$

$a_1 = -1$

23) $a_n = a_{n-1} \cdot -4$

$a_1 = 2$

24) $a_n = a_{n-1} \cdot -\frac{1}{5}$

$a_1 = 1250$