Find the indicated term of the arithmetic sequence.

Find a_{60}: 11, 5, −1, −7, …

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Explicit Rule

- ***Explicit rule:*** a rule that tells you how to get the **nth** term of the sequence without having to find the previous terms

Explicit Formula for Arithmetic Sequences:

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

- a_1 is the first term
- d is the common difference
- n is the position number

Write the Explicit Formula for the Sequence

$$9, 13, 17, 21,\ldots$$

$$a_n = 9 + 4(n - 1)$$

Write the Explicit Formula for the Sequence

$10, 8, 6, 4, \ldots$

$$a_n = 10 - 2(n - 1)$$

Write the Explicit Formula for the Sequence. Then find the indicated term.

19, 9, -1, -11,…the 12th term

$$a_n = 19 - 10(n - 1)$$

$$a_{12} = -91$$

Write the Explicit Formula for the Sequence. Then find the indicated term.

27, 0, -27, …the 6$^{\text{th}}$ term

$$a_n = 27 - 27(n - 1)$$
$$a_{12} = -108$$

Find the indicated term of the geometric sequence.

The 25th term: $a_1 = 100$; $r = 1.02$

About 160.84

- **Who can figure out the explicit formula for geometric sequences?**

Write the explicit formula of the geometric sequence, then use it to find the given term.

$a_1 = 8$; $r = 5$; The 10th term

$$a_n = 8(5)^{n-1}$$

$$a_{10} = 8(5)^9 =$$

$$15{,}625{,}000$$

Write the explicit formula of the geometric sequence, then use it to find the given term.

3, 12, 48, 192, ... 5th term

$$a_n = 3(4)^{n-1}$$

$$a_5 = 3(4)^5 = 768$$

Write the explicit formula of the geometric sequence, then use it to find the given term.

5, 15, 45, … 10th term

$$a_n = 5(3)^{n-1}$$

$$a_5 = 5(3)^9 = 98415$$

Write the explicit formula of the geometric sequence, then use it to find the given term.

100, 50, 25, … 8th term

$$a_n = 100(1/2)^{n-1}$$

$$a_5 = 100(1/2)^7 = 0.78125$$
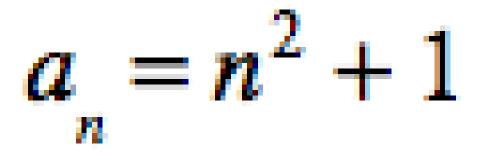
What about explicit rules for sequences that are neither arithmetic nor geometric?

Find the first four terms using this explicit rule

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

$$3, \ \frac{5}{8}, \ \frac{7}{27}, \ \frac{9}{64}$$

Find the first four terms using this explicit rule

$$a_n = n^2 + 1$$

2, 5, 10, 17

Find the first four terms using this explicit rule

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

$$\frac{1}{3}, \frac{8}{5}, \frac{27}{7}, \frac{64}{9}$$

If the given rule is recursive, write it as an explicit rule. If the rule is explicit, write it as a recursive rule.

$$a_1 = 27; \; a_n = a_{n-1} \bullet 3$$

If the given rule is recursive, write it as an explicit rule. If the rule is explicit, write it as a recursive rule.

$$f(n) = \text{-}4 + 5(n\text{-}1)$$

Talk about it

WHICH RULE DO YOU WANT IF YOU WANT TO CALCULATE THE 1,000,000$^{\text{TH}}$ TERM?

Homework

Worksheet