

Warm Up: Pre - Calc

8/23

A sequence is defined as  $a_n = a_{n-1} - 2$ ;  $a_3 = 3$

Write the first five terms of the sequence.

$$\frac{7}{1} \quad \frac{5}{2} \quad \frac{3}{3} \quad \frac{1}{4} \quad \frac{-1}{5}$$

Feb 27-7:39 AM

W.A.L.T.:

Day 5

Write explicit formulas for arithmetic sequences.

W.A.S.I.:

We can connect our understanding of the common difference, subscript notation and sequences to write the explicit formula for an arithmetic sequence.

Mar 7-9:45 AM

## In Class Work:

Let's start with this

$$\{a_n\} = \{4, 6, 8, 10, 12, \dots\}$$

1 2 3 4 5

What would an explicit formula do? (Think functions)

Mar 7-1:33 PM

## In Class Work:

Complete the blanks for the sequence  $\{4, 6, 8, 10, 12, 14, \dots\}$  formed by the number of hydrogen atoms.

$$a_1 = \underline{4} \quad d = \underline{+2} \quad a_n = 4 + \underline{(n-1)} \cdot 2$$

$$a_2 = 4 + \underline{1} \cdot 2 = 6$$

$$a_3 = 4 + \underline{2} \cdot 2 = 8$$

$$a_4 = 4 + \underline{3} \cdot 2 =$$

$$a_5 = 4 + \underline{4} \cdot 2 =$$

$$a_6 = 4 + \underline{5} \cdot 2 =$$

$$a_{10} = 4 + \underline{9} \cdot 2 =$$

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$$a_6 = 4 + \underline{5} \cdot 2 =$$


$$a_{10} = 4 + \underline{9} \cdot 2 =$$


$$a_n = \underline{4} + \underline{(n-1)} \cdot \underline{2}$$

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

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Write a general expression  $a_n$  in terms of  $n$  for finding the number of hydrogen atoms in an alkane molecule with  $n$  carbon atoms.

Use the expression you wrote in Item 12 to find the number of hydrogen atoms in decane, the alkane with 10 carbon atoms. Show your work. 

Find the number of carbon atoms in a molecule of an alkane with 38 hydrogen atoms. 

**Model with mathematics.** Use  $a_1$ ,  $d$ , and  $n$  to write an explicit formula for  $a_n$ , the  $n$ th term of any arithmetic sequence.

Use the formula from Item 15 to find the specified term in each arithmetic sequence.

a. Find the 40th term when  $a_1 = 6$  and  $d = 3$ .

b. Find the 30th term of the arithmetic sequence  $37, 33, 29, 25, \dots$

Aug 22-10:26 AM

**Notes!!!** Explicit Formula for an Arithmetic

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

What do each of these things mean?

Dec 31-10:01 PM

**Try These A**

Write an expression for the  $n$ th term of the arithmetic sequence, and then find the term.

- a. Find the 50th term when  $a_1 = 7$  and  $d = -2$ .

$$a_{50} = 7 + 49(-2) = -91$$

- b. Find the 28th term of the arithmetic sequence 3, 7, 11, 15, 19, ...

$$a_{28} = 3 + (27)4 = 111$$

- c. Which term in the arithmetic sequence 15, 18, 21, 24, ... is equal to 72?

$$72 = 15 + (n-1)3 \quad n = 20$$

Aug 22-10:26 AM

## ACT Test Prep:

53. The 3rd and 4th terms of an arithmetic sequence are 13 and 18, respectively. What is the 50th term of the sequence?

- A. 248
- B. 250
- C. 253
- D. 258
- E. 263

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## ACT Test Prep:

9. What two numbers should be placed in the blanks below so that the difference between the consecutive numbers is the same?

13,     ,     , 34

- A. 19, 28
- B. 20, 27
- C. 21, 26
- D. 23, 24
- E. 24, 29

$a_1$     $a_4$   
21

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**ACT Test Prep:**

49. Which of the following describes the total number of dots in the first  $n$  rows of the triangular arrangement below?



- A. 30  
B.  $2n$   
C.  $n^2$   
D.  $n(n + 1)$   
E.  $2n + 2(n - 1)$

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**Today's Activities:**

- Notes and practice problems with explicit formula

**P.W. for tonight:**

- pg. 17 #1 - 8 - On a separate sheet of paper

Day 4

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