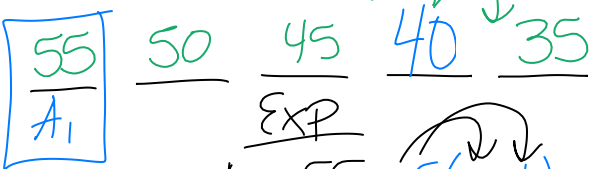


# Warmup

Have homework out on desk with your name on it. Keep it there until I say to turn it in

Create the explicit and the recursive for each sequence

1)  $a_4 = 40$   $d = -5$

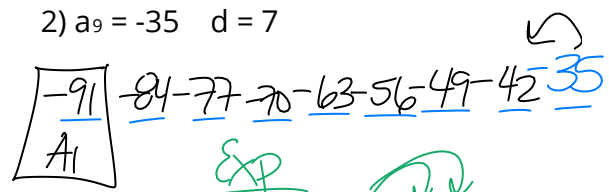


$A_0 = 60$      $A_n = 55 - 5(n-1)$   
 $55 - 5n + 5$

$60 - 5n$

Rec:  $A_1 = 55$   
 $A_n = A_{n-1} - 5$

2)  $a_9 = -35$   $d = 7$



$A_n = -91 + 7(n-1)$   
 $-91 + 7n - 7$   
 $-98 + 7n$

Function Notation

$f(n) = -98 + 7n$

$f(x) = -98 + 7x$

Recursive  
 $A_1 = -91$   
 $A_n = A_{n-1} + 7$

# What Does It Mean?

## A Solidify Understanding Task



Each of the tables below represents an arithmetic sequence.

Find the missing terms in the sequence, showing your method.

1.

x	1	2	3
y	5	8	11

+3      +3      +3

$$11 - 5 = \frac{6}{2}$$

2.

x	1	2	3	4	5
y	18	11	4	-3	-10

$$\frac{-10 - 18}{5 - 1} = \frac{-28}{4} = -7$$

3.

x	1	2	3	4	5	6	7
y	12	9	6	3	0	-3	-6

15  
Exp  
 $A_n = 15 - 3n$

$$\frac{-6 - 12}{6} = \boxed{-3 = d}$$

Rec:  $A_1 = 12$   
 $A_n = A_{n-1} - 3$

4. Describe your method for finding the missing terms. Will the method always work? How do you know?

Here are a few more arithmetic sequences with missing terms. Complete each table, either using the method you developed previously or by finding a new method.

5.

x	1	2	3	4
y	50	62	74	86

$$\frac{86 - 50}{4 - 1} = \frac{36}{3} = 12$$

Genius  
Genius  
Jomez  
↑  
Herbie

6.

x	1	2	3	4	5	6
y	40	34	28	22	16	<u>10</u>

$$\frac{10 - 40}{5} = \frac{-30}{5} = -6$$

7.

x	1	2	3	4	5	6	7	8
y	-23	-19	-15	-11	-7	-3	1	5

$$\frac{5 - (-23)}{8 - 1} = \frac{28}{7} = 4$$

8. The missing terms in an arithmetic sequence are called "arithmetic means". For example, in the problem above, you might say, "Find the 6 arithmetic means between -23 and 5". Describe a method that will work to find arithmetic means and explain why this method works.

Last term minus 1st term. Divide by how many jumps it takes to get from 1 term to other.

$$\frac{\text{Last term} - \text{1st term}}{\# \text{ jumps}}$$

**Practice problems (for the white sheet you picked up)**

1) Given the equation  $A_n = 5n - 5$ , find the following terms

$$A_8 \quad A_{14} \quad A_{45}$$

2) Given the 14th term and the common difference, find the 40th term.

$$A_{14} = 200 \quad d = -10$$

3) Given the 5th and 9th term, create the explicit and recursive

$$A_5 = 19 \quad A_9 = 35$$

4) Given the recursive definition, create the explicit definition

$$A_1 = 8 \quad A_n = A_{n-1} - 4$$

5) Given the explicit definition, create the recursive definition

$$A_n = -6 + 3n$$