

Example 1 – Here is a table from Augustus Gloop’s dad’s deal.

List out the number of candies that Augustus will get each day get as a sequence.

1st string of numbers. discrete independent
2, 4, 8, 16, 32, 64

What do you do to calculate the number of candy received on the next day?
multiplied by 2

Day	Candies
0	1
1	2
2	4
3	8
4	16
5	32
6	64

Graph the sequence on the graphing grid.

2, 4, 8, 16, 32, 64
(1,2)(2,4)(3,8)(4,16)
 $a_n \rightarrow y$
 $n \rightarrow x$

Calculate the number of candies Augustus would get on day 25. How did you calculate it?

Recursive Formulas –

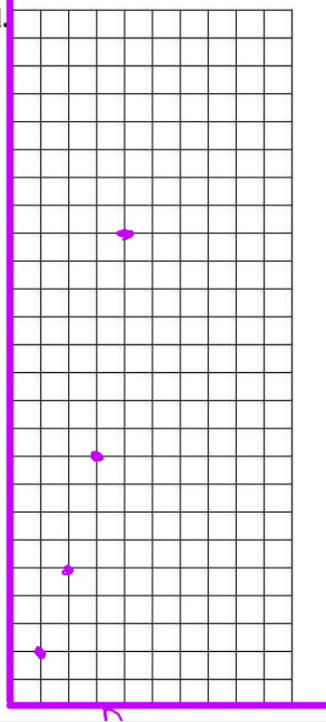
$a_n = a_{n-1} \cdot 2, a_0 = 1$

$a_0 \rightarrow IV$

Explicit Formulas –

$f(n) = 1 \cdot 2^n$

~~$f(x)$~~
 $y = a(b)^x$
 $f(x) = a(b)^x$



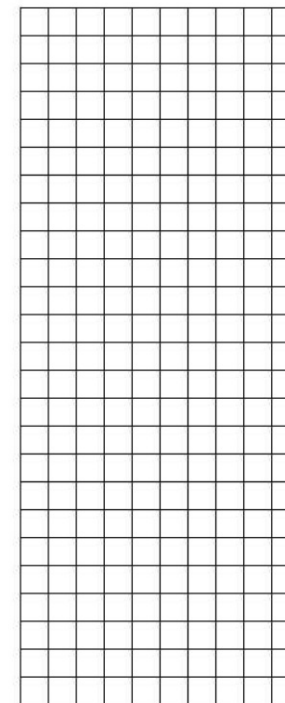
Example 2 – Here is a table from Augustus Gloop’s mom’s deal.

List out the number of candies that Augustus will get each day get as a sequence.

Day	Candies
0	0
1	20
2	40
3	60
4	80
5	100
6	120

What do you do to calculate the number of candy received on the next day?

Calculate the number of candies Augustus would get on day 25. How did you calculate it?



Example 3 – Complete the sequence by using recursion.

$$A = \{5, 9, 13, 17, a_5, a_6, 29, 33, 37, a_{10}\}$$

+4
 $(1, 5) (2, 9) (3, 13)$

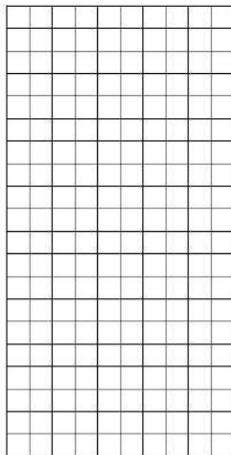
What are the fifth, sixth, and tenth terms of the sequence?

$$a_5 = 21$$

$$a_6 = 25$$

$$a_{10} = 41$$

Graph the Sequence.



Example 4 – Find the missing terms in the sequence using recursion.

$$B = \{6, 18, 54, 162, b_5, b_6, 4374, b_8\}$$

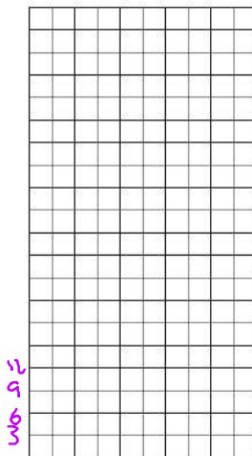
What are the fifth, sixth, and tenth terms of the sequence?

$$b_5 = 486$$

$$b_6 = 1458$$

$$b_8 = 13,122$$

Graph the Sequence.



Example 5 – What is the fourth term in the sequence given by

$$f(n) = 3n - 7$$

n=4
 $f(4) = 3(4) - 7$
 $= 5$

Example 6 – Write the first four terms of the following sequences.

A. $a_n = a_{n-1} - 5;$

$a_0 = -3$

$a_1 = -8$ $a_2 = -13$ $a_3 = -18$ $a_4 = -23$
 $a_1 = a_0 - 5$
 $-3 - 5 = -8$

B. $a_n = -3[a_{n-1}];$ $a_0 = 2$

$-6, 18, -54, 162$

C. $f(n) = 1200\left(\frac{1}{4}\right)^n$

Example 7 – Find the fifth term of a sequence when...

$$a_n = 4[a_{n-1}]; \quad a_3 = 25$$

$25, 100, (400)$
 $a_3 \mid a_4 \mid a_5$