Apr. 5, 2017

Sect. 11-1

Number Patterns

Series ? Sequences

First 5 terms

Recursive Defn.

Series ! Sequences

$a_1, a_2, a_3, a_4, \ldots, a_{20}, \ldots, a_n$

a_n n is the term #.

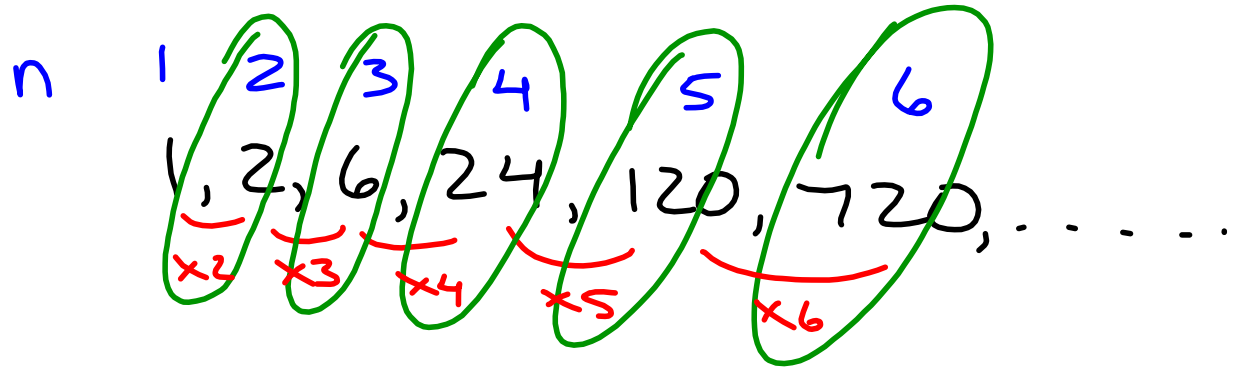
$a_n = 12n + 3$

5 terms 12TH

$a_1 = 12(1) + 3 = 12 + 3 = 15$

$a_2 = 12(2) + 3 = 24 + 3 = 27$

$15, 27, 39, 51, 63, \ldots, 147$



$$a_2 = a_1(2)$$
$$a_3 = a_2(3)$$
$$a_4 = a_3(4)$$
$$\vdots$$
$$a_n = a_{n-1}(n) \; ; a_1 = 1$$

1 2 3 4 5

0, 3, 8, 15, 24, ...

1, 4, 9, 16, 25, 36, 49

n^2

$a_n = n^2 - 1$

Recursive Seq.

Every rec. seq. is defined by a formula

Most of the time we use previous terms.

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

$$a_1 = 5$$

Write the first 4 terms

$$5, 11, 23, 47, \ldots$$

$$a_n = a_{n-1} + n$$

$$a_1 = 2$$

$$\frac{2}{1}, \frac{4}{2}, \frac{7}{3}, \frac{11}{4}, \ldots$$

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

$$a_1 = 1 \quad a_2 = 1$$

1, 1, 2, 3, 5, 8, 13, 21

Fibonacci Series