COMPARING sequences

Arithmetic Sequences:

EX: ① 8, 11, 14, 17, 20, ...
② 30, 25, 20, 15, 10, ...

* Adding or Subtracting pattern
* common difference
* similar to Linear function

Explicit:

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

Recursive:

$a_1 = \#$
$a_n = a_{n-1} + d$

EX.

8, 11, 14, 17, 20

write explicit & find a_{20}

$a_n = 8 + 3(n-1)$
$= 8 + 3n - 3$
$\boxed{a_n = 3n + 5}$

$a_{20} = 3(20) + 5$
$\boxed{a_{20} = 65}$

Geometric Sequences

① 5, 10, 20, 40, 80

② 16, 8, 4, 2, 1, 1/2

* Multiply Pattern
* Common Ratio
* similar to exponential function

Explicit:

$a_n = a_1 (r)^{n-1}$

Recursive:

$a_1 = \#$

$a_n = a_{n-1} \cdot r$

Ex: 5, 10, 20, 40, 80

write explicit & find a_{10}

$a_n = 5(2)^{n-1}$

$a_{10} = 5(2)^9$