

SEQUENCES CH 1

• a sequence is a list of numbers, often with a pattern

For example:

① 3, 7, 11, 15, 19, 23 ...
 ↘ ↘ ↘
 +4 +4 +4

• Arithmetic Sequence
 → adding the same #

② 20, 18, 16, 14, 12, 10

• Arithmetic

③ 2, 4, 8, 16, 32, 64, ...
 ↘ ↘ ↘
 x2 x2 x2

• Geometric Sequence
 → mult by the same number

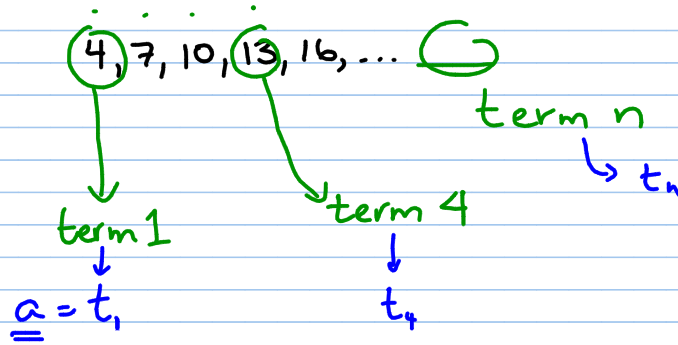
④ 1, 1, 2, 3, 5, 8, 13
 ↘ ↘ ↘
 + + +

Fibonacci's Sequence

⑤ 1, 1, 2, 1, 1, 3, 1, 1, 4, 1, 1, 5

Barker's Sequ!

Arithmetic Sequences



terms: $t_1, t_2, t_3, \dots, t_n$

common difference: d (# that we add each time)

In our example, the common difference was 3

Ex: $-3, -1, 1, 3, 5, \dots$

$t_1 = -3$

$d = 2$

$t_1 = -3$

$t_2 = -3 + 1 \cdot 2 = -1$

$t_3 = -3 + 2 \cdot 2 = 1$

$t_4 = -3 + 3 \cdot 2 = 3$

$t_5 = -3 + 4 \cdot 2 = 5$

$t_6 = -3 + 5 \cdot 2 = 7$

⋮

$t_{25} = -3 + 24 \cdot 2 = 45$

⋮

$t_{700} = -3 + 699 \cdot 2 = 1395$

$$t_n = t_1 + (n-1) \cdot d$$

$$t_1 = 7$$

$$d = 2$$

$$t_{37} =$$

$$t_n = t_1 + (n-1) \cdot d$$

$$\underline{t_{37}} = 7 + (37-1)(2)$$

$$t_{37} = 7 + 36 \cdot 2$$

$$t_{37} = 79$$

The 'n' must be a number
from the set of
Natural numbers

$$n \in \mathbb{N}$$