

Definitions:

A Sequence function whose domain is a set of consecutive integers (list of ordered numbers separated by commas).

Each number in the list is called a term.

- For Example:

Sequence 1
Term 1, 2, 3, 4, 5

a_1, a_2, a_3, a_4, a_5
2, 4, 6, 8, 10

x^2 ← Exponent
 x_4 ← name

Domain (a_n) – relative position of each term (1,2,3,4,5) Usually begins with position 1 unless otherwise stated.

Range – the actual “terms” or outcomes of the sequence (2,4,6,8,10)

Sequence 2
Term 1, 2, 3, 4, 5

$a_1, a_2, a_3, a_4, a_5, a_6, a_7, a_8, \dots$
-3, -6, -9, -12, -15, ...

A sequence can be *finite* or *infinite*.

The sequence has a last term or *final* term. (such as seq. 1)

The sequence continues without stopping. (such as seq. 2)

Both sequences have an equation or general rule: $a_n = 2n$ where n is the term # and a_n is the n th term.

The general rule can also be written in function notation: $f(n) = 2n$

1) Write the first 6 terms of $a_n = 5 - n$

$a_1 = 5 - 1 = 4$
 $a_2 = 5 - 2 = 3$
 $a_3 = 5 - 3 = 2$
 $a_4 = 5 - 4 = 1$
 $a_5 = 5 - 5 = 0$
 $a_6 = 5 - 6 = -1$

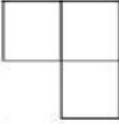
2) Write the first 6 terms of $a_n = 2^n$

$a_1 = 2^1 = 2$
 $a_2 = 2^2 = 4$
 $a_3 = 2^3 = 8$
 $a_4 = 2^4 = 16$
 $a_5 = 2^5 = 32$
 $a_6 = 2^6 = 64$

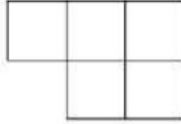
Assignment: T4-61 Into to Sequences

1. Here is a pattern of squares

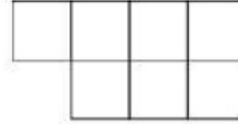
Pattern 1



Pattern 2



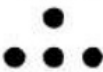
Pattern 3



- Draw pattern 4
- How many squares will there be in pattern number 13?
- Which pattern has 27 squares?

2. Here is a pattern of dots

Pattern 1



Pattern 2



Pattern 3



- Draw pattern 4
- How many dots will there be in pattern 15?
- Jack says there are 70 dots in pattern 20. Is he right? You must explain your answer.

3. Here is a made from bricks

Pattern 1



Pattern 2



Pattern 3



- Draw pattern 4
- How many bricks will there be in pattern number 8?
- Which pattern will have 49 bricks?
- How many bricks will there be in pattern n?

4. Here is a made from white and grey tiles.

Pattern 1



Pattern 2



Pattern 3



- Draw pattern 4
- How many white tiles will there be in pattern number 10?
- How many grey tiles will there be in pattern 8?
- Miles has 49 grey tiles and 32 white tiles. Which pattern can he make?
- Emma has 90 grey tiles and 42 white tiles. She says she can make pattern number 10. She is incorrect, explain why.
- How many more grey and white tiles will Emma need to make pattern number 10.

Find the next three terms in the given sequence.

5. -10, 0, 10, 20, ...

6. -31, 169, 369, 569, ...

7. 16, 36, 56, 76,

8. 131, 252, 373, 494, 5115,

Find the next four numbers in the sequence and name the sequences (you may have to do a little research!)

9. 1, 1, 2, 3, 5, 8, ...

10. 1, 131, 13431, 1347431,