

## Quadratic Function

(parabola) 

A function that can be represented by  $y = ax^2 + bx + c$ , where **a** and **b** are **coefficients**, **a**  $\neq$  **0**, and **c** is a **constant** number. **The greatest exponent in the function is 2**, therefore the function is said to have a degree of 2. Degree

## **Coefficient**

**The constant part of a term in an expression.**

**Example:**

**In the expression  $2x^2 + 3x - 9$ ,  $2$  is the coefficient in the term  $2x^2$ .**

## Quadratic Sequence

**A sequence whose terms are generated by a quadratic function.**

Ex.  $1, 4, 9, 16, 25, 36, \dots$

$D_1$   $3, 5, 7, 9, 11$

$D_2$   $2, 2, 2, 2$


\* Since  $D_2$  is a constant this is a quadratic sequence.

# QUADRATIC SEQUENCES

## EXAMPLE:

1. 2, 6, 12, 20, 30, 42

$D_1$  4 6 8 10 12 

$D_2$  2 2 2 2 

$D_1$  is not constant, therefore  
this is not an Arithmetic  
Sequence

$D_2$  is constant, therefore this  
is a QUADRATIC Sequence

① b) 3, 5, 9, 15, 23, 33, 45

$D_1$  2 4 6 8 10 12

$D_2$  2 2 2 2 2

\* Constant on  $D_2$  (Quadratic)

$D_2 = 2$

② a)  $t_n = n^2 + 2n - 3$  ↗ exponent of 2 means its quadratic

n	$t_n$
1	$(1)^2 + 2(1) - 3 = 0$
2	5
3	12
4	21
5	32



③

0 5 12 21 32

$D_1$  5 7 9 11

$D_2$  2 2 2