

# Software Design & Development

## Pre-Defined Functions

A pre-defined function is a function already built into the programming language which performs mathematical calculations, manipulates text, and formats values. Most programming languages have hundreds of pre-defined functions that can be used at any time to perform a specific task.

### Advantages of pre-defined functions

- Saves the programmer lots of time, this is because
  - the code has already been written, therefore programmers have less code to create
  - the code has already been tested, therefore less time spent debugging

### Pre-Defined Functions for N5

Function	Purpose	Example	Description
<b>ROUND</b>	Round a numeric value to a specified number of decimal places	Math.round(average, 0)	Rounds average to 0 decimal places
		Math.round(weight, 2)	Rounds weight to 2 decimal places
<b>RANDOM</b>	Generates a random number	Randomize RandomNumber = Int ( RND * 10)	Generates a random number between 0 and 9
		Randomize RandomNumber = Int ( RND * 9) + 1	Generates a random number between 1 and 10
		Randomize RandomNumber = Int(Rnd * 50)	Generates a random number between 0 and 50
<b>LENGTH</b>	Returns the length of a string	LEN("Jessica") returns 7	Returns the number of characters the string
		If LEN(ID) <> 5	Checks if the number of characters in ID <b>IS NOT</b> equal to 5

## Pre-Defined Functions for Higher

Function	Purpose	Example	Description	Notes
<b>MID\$</b>	Substring	Mid\$( <i>string, start, number of characters</i> )	Extracts a substring from a string	
		Mid\$("Word", 2, 3) returns ord		
		Mid\$("computer, 4, 3) returns put		
<b>ASC</b>	ASCII	Asc("A") returns 65	Returns the ASCII value of a character	<b>A-Z (upper case)</b> ASCII values between 65 and 90  <b>a – z(lower case)</b> ASCII values between 97 and 122
<b>CHARACTER</b>	CHR	Chr(97) returns a	Takes an ASCII value and returns the corresponding character	
<b>INTEGER</b>	INT	INT(3.7556) returns 3	Returns the whole number part of a real number	
<b>CONVERSION INTEGER</b>	CINT	CINT(3.7556) returns 4	Rounds a real number to the nearest integer	
<b>MODULUS</b>	MOD	First MOD second	Returns the remainder of first divided by second	
		7 MOD 3 returns 1		

## Other Useful Functions

Function	Purpose	Example	Description
<b>LCASE</b>	Converts a string to lower case	Name = LCASE(JENNIFER)	Name would now store jennifer
<b>UCASE</b>	Converts a string to upper case	Name = UCASE(Jennifer)	Name would now store JENNIFER
<b>SQRT</b>	Returns the square root of a numeric value	Number = SQRT(49)	Number would store the value 7

## Parameters

Parameters are variables or values that are passed in to be used by a function.

Function	Parameters
<b>Round(weight, 0)</b>	Weight and 0
<b>Len(pupil_ID)</b>	Pupil_ID
<b>SQRT(number)</b>	Number