# Functions in a spreadsheet – Talking Points

A diagram of a process

Description automatically generated with low confidence

## Introduction

* Formulae are user defined instructions used for carrying out calculations.
* If the process is user defined the set of instructions is called a formula, if its in built or comes with the excel software it’s called a function.

## Formulae

A screenshot of a computer

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A formula must begin with an equal to sign, followed by operands and operators.

* Operand is a value, or a reference used in a formula.
  + Cell references and ranges are the addresses of cells in the worksheets.
  + The constants are the values that are not stored in cells, rather directly entered as values.
* Operators are symbols that tell excel what type of calculation to perform.
* Functions are inbuilt or predefined formulae.

A diagram of a function

Description automatically generated with low confidence

## Formula complexity

Formula complexity is based on the number of operators used and nesting of other formulae and functions.

### Basic Formula

A formula with only one type of operator.

### Compound Formula

A formula with more than one type of operator.

### Complex Formula

A formula with more than one type of operator and can also include other functions and formulae.

## Cell Range

A cell range is a group of contiguous cells.

A cell range can also be named for ease of access and use.

## Types of Cell references

|  |  |  |
| --- | --- | --- |
| Type | Description | When to use |
| Relative | Changes when a formula is copied to another cell | When you want the formula to refer to different cells when it is copied |
| Absolute | Does not change when a formula is copied to another cell | When you want the formula to refer to the same cell when it is copied |
| Mixed | A combination of relative and absolute cell references | When you want the formula to refer to different rows or columns when it is copied, but the same cell in the same row or column |

## Functions

Functions are predefined formulae in excel used to perform both simple and complex calculations. They accept **arguments** and return **values**.

Arguments are the inputs to a function, and they are enclosed in parenthesis. They can be numbers, text etc.

Functions begin with the ‘=’ sign followed by the function name and the list of arguments separated by commas within the parenthesis.

|  |  |
| --- | --- |
| Function | Description |
| SUM | Returns the sum of a range of cells. |
| AVERAGE | Returns the average of a range of cells. |
| MAX | Returns the maximum value in a range of cells. |
| MIN | Returns the minimum value in a range of cells. |
| COUNT | Returns the number of cells in a range that contain numbers. |
| ODD | Returns the odd number that is one greater than the value in a cell. |
| INT | Returns the integer part of a number. |
| PRODUCT | Returns the product of a range of cells. |
| ROUND | Returns a number rounded to a specified number of decimal places. |
| EXP | Returns the exponential of a number. |
| SQRT | Returns the square root of a number. |
| POWER | Returns the result of raising a number to a power. |
| MOD | Returns the remainder of a division operation. |
| CONCAT | Concatenates two or more strings. |
| TODAY | Returns the current date. |