

## Overview of Formulas and Using AutoSum

This lesson introduces what spreadsheet programs are really all about: formulas.

### Formula overview

Formulas are values, but unlike regular values, formulas contain information to perform a numerical calculation, such as adding, subtracting, or multiplying.

All formulas must start with an equal sign (=). Then you must specify two more types of information: the values you want to calculate and the arithmetic operator(s) or function name(s) you want to use to calculate the values. Formulas can contain numbers, like 5 or 8, but more often they reference the contents of cells. For example, the formula `=A5+A6` adds the values in cells A5 and A6. Using these *cell references* is advantageous because if you change the values in the referenced cells, the formula result updates automatically to take the new values into account.

You're already familiar with some of the arithmetic operators used in Excel formulas, such as the plus sign (+). Functions are pre-made formulas that you can use as shortcuts or to perform calculations that are more complicated. For example, the PMT function calculates loan payments based on an interest rate, the length of the loan, and the principal amount of the loan.

### AutoSum

SUM is a common Excel function used to find the total of a range of cells. Excel has a shortcut button, called AutoSum, that can insert the formula for you.

1. Click a **cell** next to the column or row of numbers you want to sum.
2. Click the **Home** tab and click the **AutoSum** button in the Editing group.

The SUM function appears in the cell and a moving dotted line appears around the cell range that Excel thinks you want to sum. If the range is not correct, click and drag to select the correct range.

**Tip:** Click the **AutoSum** button list arrow to choose from other common functions, such as Average.

3. Press the **<Enter>** key to confirm the action.

The cell range is totaled in the cell. If you change a value in the summed range, the formula will automatically update to show the new sum.

#### Exercise Notes

- **Exercise File:** Sales2-3.xlsx.
- **Exercise:** AutoSum the column B expense values in cell B11.



Figure 2-7: The AutoSum button in the Editing group.

	A	B	C	D	E
1	Sales and Expenses				
2					
3		Jan	Feb	Mar	Apr
4	Sales	12000	17000	18500	16500
5					
6	Expenses				
7	Supplies	1200	2500	3000	3500
8	Office	500	600	700	800
9	Salaries	7000	7000	7000	7000
10	Utilities	3000	3000	3000	4000
11	Total	=SUM(B7:B10)			
12					
13					

Figure 2-8: Using the SUM function in a formula to sum a range of cells.