# Chapter Five

Using Spread Sheet

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1. Introduction

Excel is a **spreadsheet program** that allows you to store, organize, and analyze information.

2. Getting to know Excel 2010

The **Ribbon** and **Quick Access toolbar** are where you'll find the commands you need to perform common tasks in Excel. If you are familiar with Excel 2007, you will find that the main difference in the Excel 2010 Ribbon is that commands such as Open and Print are now housed in **Backstage view**.
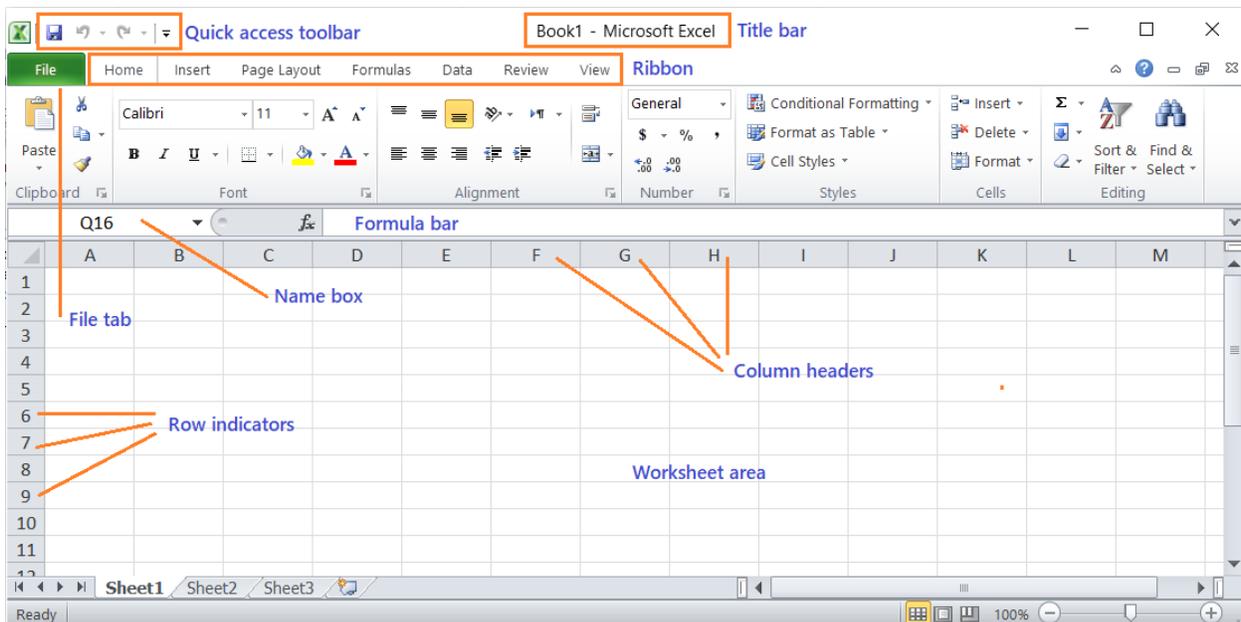

2.1   Introduction to Cells

Cells are the basic building blocks of a worksheet. They can contain a variety of content such as **text, formatting attributes, formulas,** and **functions.** To work with cells, you'll need to know how to **select** them, **insert** content, and **delete** cells and **cell content.**

The cell

Each rectangle in a worksheet is called a cell. A cell is the intersection of a row and a column. Each cell has a name, or a cell address based on which column and row it intersects.
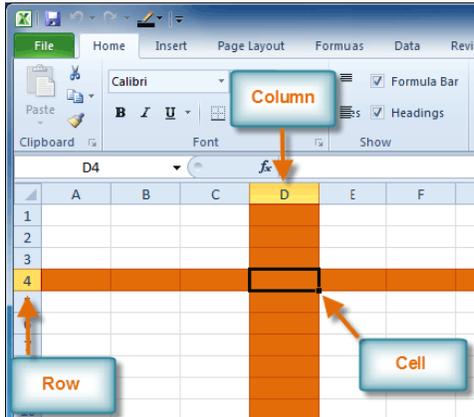
The cell address of a selected cell appears in the name box. Here, you can see that C5 is selected.
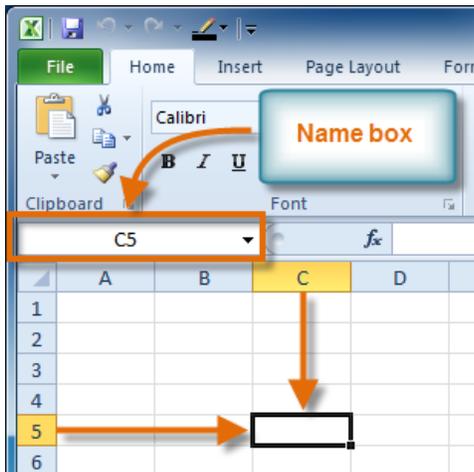
You can also select multiple cells at the same time. A group of cells is known as a cell range. Rather than a single cell address, you will refer to a cell range using the cell addresses of the first and last cells in the cell range, separated by a colon. For example, a cell range that included cells A1, A2, A3, A4, and A5 would be written as A1:A5.

To select a cell:
1. **Click a cell** to select it. When a cell is selected, you will notice that the **borders** of the cell appear bold and the **column heading** and **row heading** of the cell are highlighted.


2. Release your mouse. The cell will stay selected until you click another cell in the worksheet.

To select multiple cells:

1. Click and drag your mouse until all of the adjoining cells you want are highlighted.
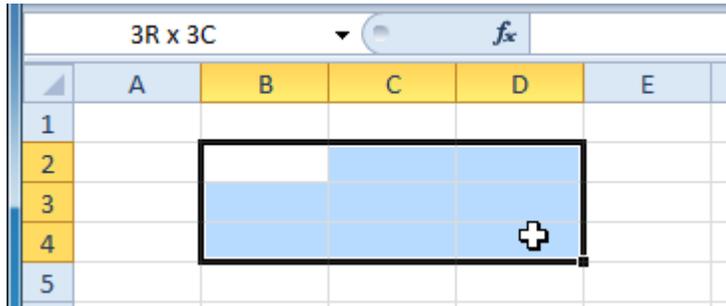
2. Release your mouse. The cells will stay selected until you click another cell in the worksheet.

Cell content

Each cell can contain its own text, formatting, comments, formulas, and functions.

- **Text**
  Cells can contain letters, numbers, and dates.
- **Formatting attributes**
  Cells can contain formatting attributes that change the way letters, numbers, and dates are displayed. For example, dates can be formatted as MM/DD/YYYY or M/D/YYYY.
- **Comments**
  Cells can contain comments from multiple reviewers.
- **Formulas and functions**
  Cells can contain formulas and functions that calculate cell values. For example, SUM(cell 1, cell 2...) is a formula that can add the values in multiple cells.

To insert content:

1. Click a cell to select it.
2. Enter content into the selected cell using your keyboard. The content appears in the cell and in the formula bar. You can also enter or edit cell content from the formula bar.
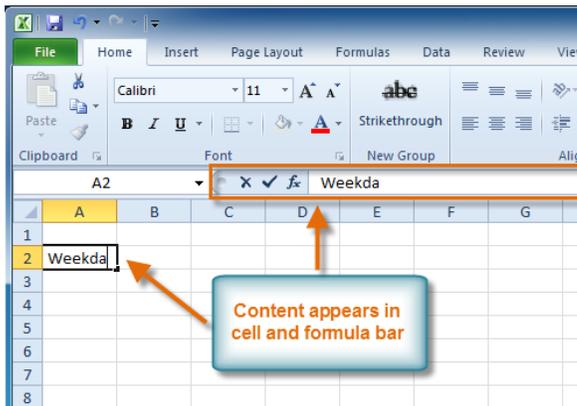
To delete content within cells:

1. Select the cells containing content you want to delete.
2. Click the Clear command on the Ribbon. A dialog box will appear.
3. Select Clear Contents.
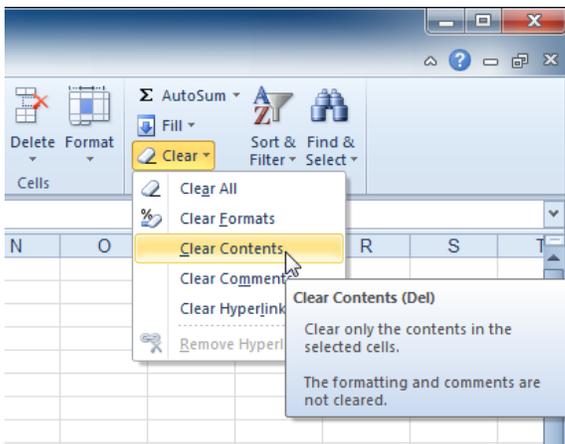
To delete cells:

1. Select the cells you want to delete.
2. Choose the Delete command from the Ribbon.
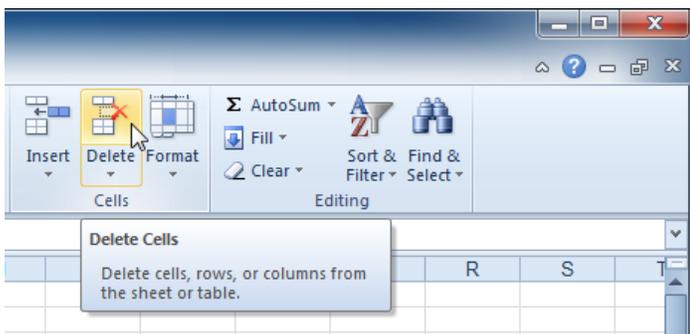
To copy and paste cell content:
1. Select the cells you want to copy.
2. Click the Copy command. The border of the selected cells will change appearance.
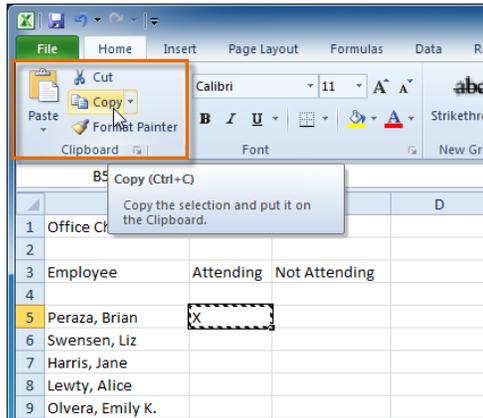

3. Select the cell or cells where you want to paste the content.
4. Click the Paste command. The copied content will be entered into the highlighted cells.
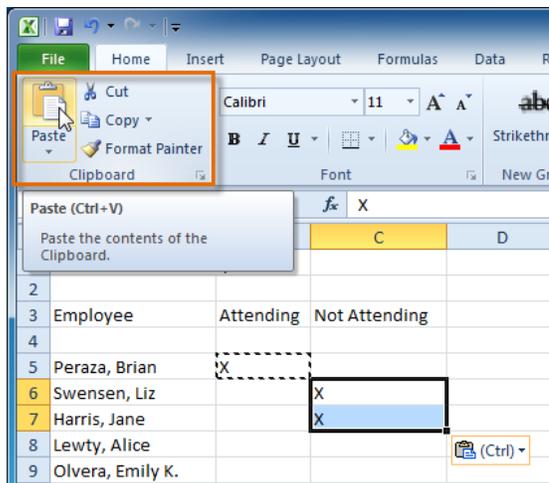
To cut and paste cell content:

1. Select the cells you want to cut.
2. Click the Cut command. The border of the selected cells will change appearance.
3. Select the cells where you want to paste the content.
4. Click the Paste command. The cut content will be removed from the original cells and entered into the highlighted cells.

To access more paste options:

There are more Paste options you can access from the drop-down menu on the Paste command. These options may be convenient to advanced users who are working with cells that contain formulas or formatting.
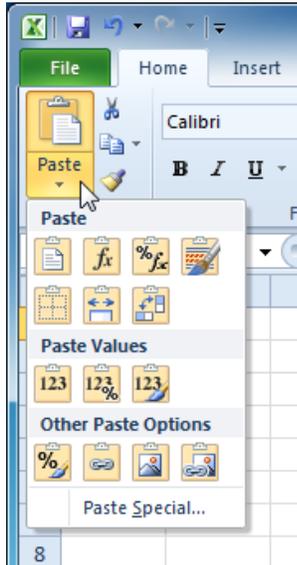

3. Formatting numbers and dates

One of Excel's most useful features is its ability to format numbers and dates in a variety of ways. For example, you might need to format numbers with decimal places, currency symbols ($), or percent symbols (%).

To format numbers and dates:
1. Select the cells you want to modify.
2. Click the **drop-down arrow** next to the **Number Format** command on the Home tab.
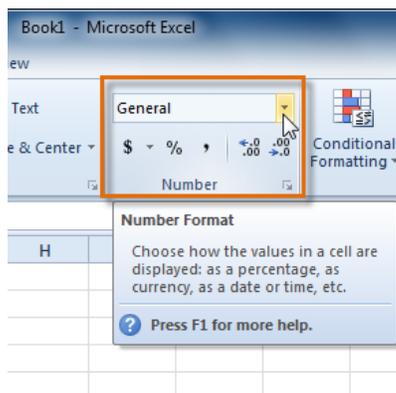
3. Select the number format you want. For some number formats, you can then use the **Increase Decimal** and **Decrease Decimal** commands (below the Number Format command) to change the number of decimal places that are displayed.
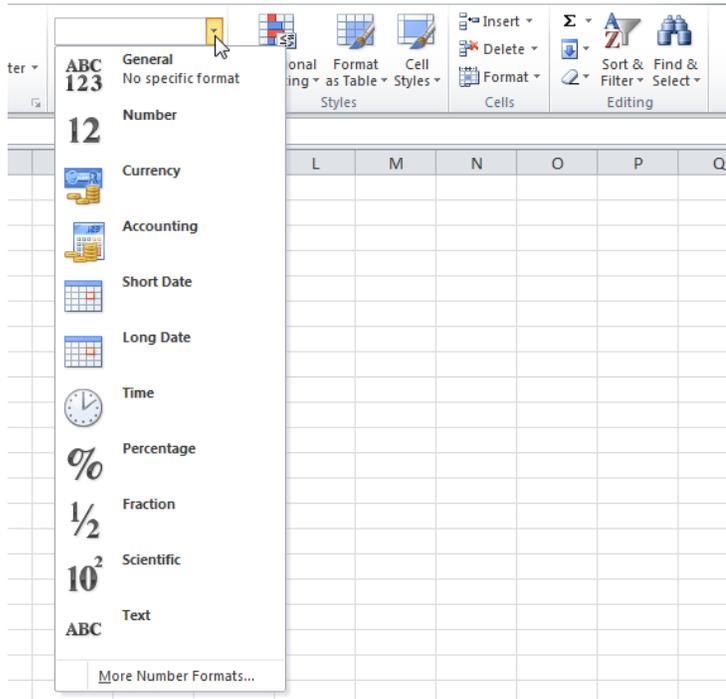

4. Simple formulas

A **formula** is an equation that performs a calculation. Like a calculator, Excel can execute formulas that add, subtract, multiply, and divide. One of Excel's most useful features is its ability to calculate using a cell address to represent the value in a cell. This is called using a cell reference.

Creating simple formulas
Excel uses standard operators for equations, such as a **plus sign** for addition (+), **minus sign** for subtraction (-), **asterisk** for multiplication (*), **forward slash** for division (/), and **caret** (^) for exponents.

The key thing to remember when writing formulas for Excel is that all formulas must begin with an **equals sign** (=). This is because the cell contains—or is equal to—the formula and its value.

Addition	+	=5+5
Subtraction	-	=5-5
Multiplication	*	=5*5
Division	/	=5/5
Exponents	^	=5^5

To create a simple formula in Excel:

1. Select the cell where the answer will appear (B4, for example).
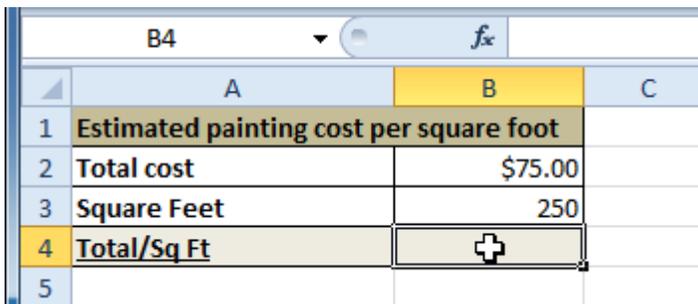
B4	f_x	
A	B	C
1 Estimated painting cost per square foot		
2 Total cost	$75.00	
3 Square Feet	250	
4 Total/Sq Ft		
5		

2. Type the equals sign (=).
3. Type in the formula you want Excel to calculate (75/250, for example).
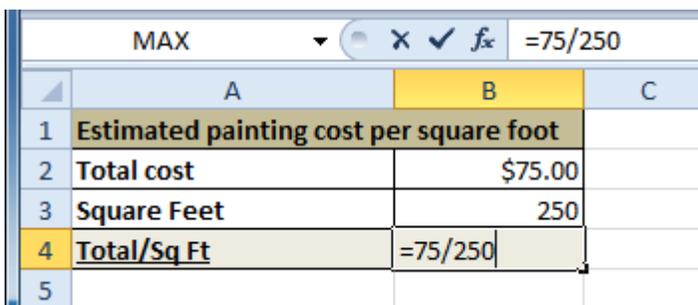
MAX	✕ ✓ f_x =75/250	
A	B	C
1 Estimated painting cost per square foot		
2 Total cost	$75.00	
3 Square Feet	250	
4 Total/Sq Ft	=75/250	
5		

4. Press Enter. The formula will be calculated, and the value will be displayed in the cell.

B4		f_x	=75/250

	A	B	C
1	Estimated painting cost per square foot		
2	Total cost	$75.00	
3	Square Feet	250	
4	Total/Sq Ft	$0.30	
5			

Note: If the result of a formula is too large to be displayed in a cell, it may appear as pound signs (#######) instead of a value. This means the column is not wide enough to display the cell content. Simply increase the column width to show the cell content.

Creating formulas with cell references

When a formula contains a cell address, it is called a cell reference. Creating a formula with cell references is useful because you can update data in your worksheet without having to rewrite the values in the formula.

To create a formula using cell references:

1. Select the cell where the answer will appear (B3, for example).

B3		f_x	

	A	B	C	D
1	Budget for June	$ 400.00		
2	Budget for July	$ 300.00		
3	Total Budget	⊕		
4				

2. Type the equals sign (=).
3. Type the cell address that contains the first number in the equation (B1, for example).

SUM		✗ ✓ f_x	=B1

	A	B	C	D
1	Budget for June	$ 400.00		
2	Budget for July	$ 300.00		
3	Total Budget	=B1		
4				

4. Type the operator you need for your formula. For example, type the addition sign (+).

5. Type the cell address that contains the second number in the equation (B2, for example).
6. Press Enter. The formula will be calculated, and the value will be displayed in the cell.

B3			f_x	=B1+B2

	A	B	C	D
1	Budget for June	$400.00		
2	Budget for July	$300.00		
3	Total Budget	$700.00		
4				

If you change a value in either B1 or B2, the total will automatically recalculate.

B3			f_x	=B1+B2			

	A	B	C	D	E	F	G
1	Budget for June	$400.00					
2	Budget for July	$200.00		Changed B2 value from $300.00 to $200.00			
3	Total Budget	$600.00					
4							
5							
6				Since B3 contains the formula =B1+B2, the value in B3 is automatically recalculated to equal $600.00			
7							
8							
9							
10							
11							

Offline Topics: You are recommended to watch: 1. Video 19- Excel 2010- Modifying Cells, Rows, and Columns 2. Video 20-Excel 2010- Introduction to Worksheets
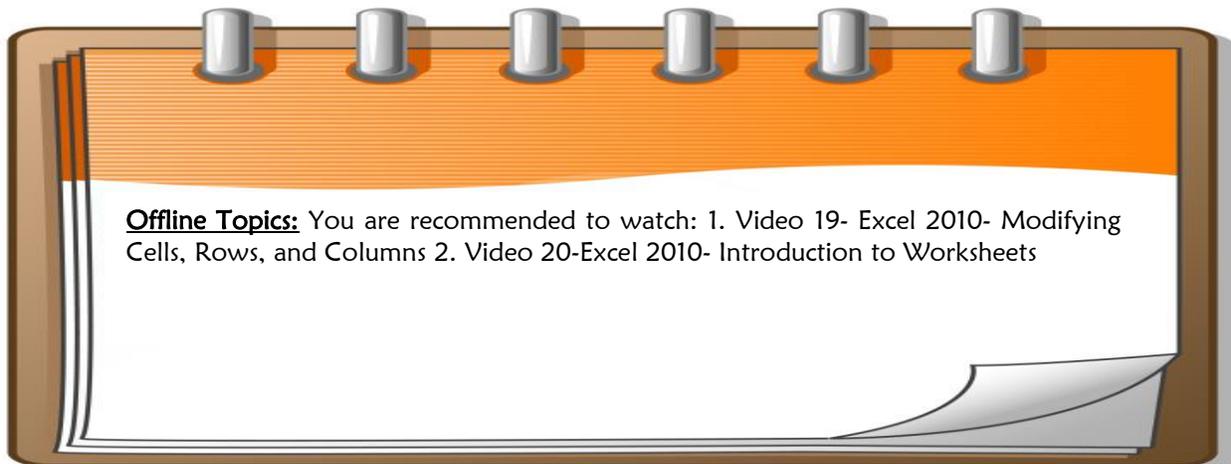
5. Complex formulas

Simple formulas have one mathematical operation, such as **5+5**. **Complex formulas** have more than one mathematical operation, such as **5+5-2**. When there is more than one operation in a formula, the **order of operations** tells us which operation to calculate first. To use Excel to calculate complex formulas, you'll need to understand the order of operations.

The order of operations:

Excel calculates formulas based on the following **order of operations**:

1. Operations enclosed in **parentheses.**
2. **Exponential** calculations (to the power of).
3. **Multiplication** and **division**, whichever comes first.
4. **Addition** and **subtraction**, whichever comes first.

Example

The following example demonstrates how to use the order of operations to calculate a formula:

$40/(10-8)*4^2$

Perform the operation in parentheses first: $10-8=2$

formula becomes
$40/2*4^2$

Next calculate the exponent: $4^2=16$

formula becomes
$40/2*16$

Division comes before multiplication in this example, so divide: $40/2=20$

formula becomes
$20*16$

The last operation is multiplication: $20*16=320$

The final answer is **320**
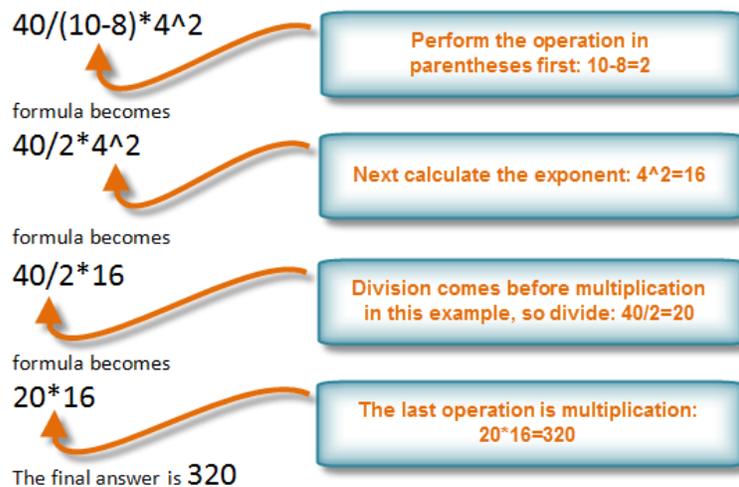
To create a complex formula using the order of operations:

In this example, we'll use **cell references** in addition to actual values to create a complex formula that will add tax to the nursery order.

1. Click the cell where you want the formula result to appear (**F11**, for example).
2. Type the **equals sign (=)**.
3. Type an **open parenthesis**, then click the cell that contains the first **value** you want in the formula (**F4**, for example).
4. Type the first **mathematical operator** (the addition sign, for example).
5. Click the cell that contains the second **value** you want in the formula (**F5,** for example), then type a **closed parenthesis**.
6. Type the next **mathematical operator** (the multiplication sign, for example).
7. Type the next **value** in the formula (**0.055** for **5.5% tax**, for example).

SUM	▾	× ✓ *fx*	=(F4+ F5)*0.055		
A	B	C	D	E	F
1					
2	Blooming Bells Nursery				
3	ITEM	ITEM #	Price	Quantity	Total
4	LE Tomato Planter Bags	SG324	$18.99	2	$37.98
5	M - Cord	AU396	$0.12	5	$0.60
6					
7					
8					
9					
10					
11	Tax				=(F4+ F5)*0.055
12	Total				$40.70
13					

8. Click Enter to calculate your formula. The results show that $2.12 is the tax for the nursery order.

$2.12

## 6. Working with basic functions

A function is a predefined formula that performs calculations using specific values in a particular order. One of the key benefits of functions is that they can save you time because you do not have to write the formula yourself. Excel has hundreds of functions to assist with your calculations.

To use these functions correctly, you need to understand the different parts of a function and how to create arguments in functions to calculate values and cell references.

The parts of a function

The order in which you insert a function is important. Each function has a specific order—called **syntax**—which must be followed in order for the function to work correctly. The basic syntax to create a formula with a function is to insert an **equals sign (=)**, **function name** (SUM, for example, is the function name for addition), and **argument**. Arguments contain the information you want the formula to calculate, such as a range of cell references.
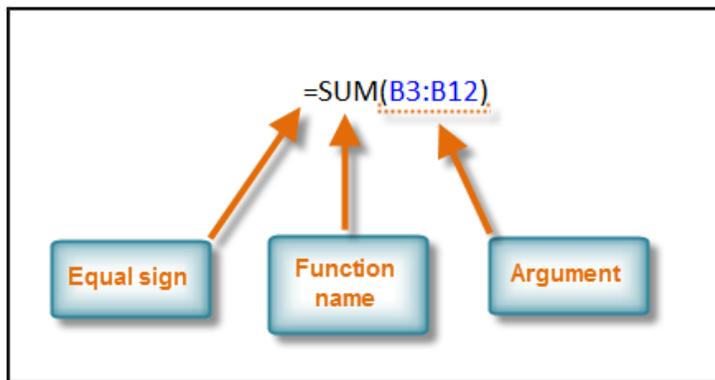
Working with arguments

Arguments must be enclosed in parentheses. Individual values or cell references inside the parentheses are separated by either colons or commas.

- **Colons** create a reference to a range of cells.

  For example, =AVERAGE(E19:E23) would calculate the average of the cell range E19 through E23.
- **Commas** separate individual values, cell references, and cell ranges in parentheses. If there is more than one argument, you must separate each argument by a comma.

  For example, =COUNT(C6:C14,C19:C23,C28) will count all the cells in the three arguments that are included in parentheses.

Creating a function

There are a variety of functions available in Excel. Here are some of the most common functions you'll use:

- SUM: This function adds all of the values of the cells in the argument.

- AVERAGE: This function determines the average of the values included in the argument. It calculates the sum of the cells and then divides that value by the number of cells in the argument.
- COUNT: This function counts the number of cells with numerical data in the argument. This function is useful for quickly counting items in a cell range.
- MAX: This function determines the highest cell value included in the argument.
- MIN: This function determines the lowest cell value included in the argument.

To create a basic function in Excel:

1. Select the cell where the answer will appear (F15, for example).
2. Type the equals sign (=), then enter the function name (SUM, for example).

$12.20	$61.00	8-Aug	11-Aug
$7.33	$36.65	8-Aug	11-Aug
=SUM			

SUM — Adds all the numbers in a range of cells
SUMIF
SUMIFS
SUMPRODUCT
SUMSQ
SUMX2MY2
SUMX2PY2
SUMXMY2

Unit Price		Ordered	Date Received
$12.03		18-Sep	26-Sep
$15.95		18-Sep	26-Sep
$5.87		8-Aug	14-Aug
$8.83		8-Aug	14-Aug
$13.54	$27.08	22-Jul	29-Jul

3. Enter the cells for the argument inside the parentheses.

| Unit Price	Subtotal	Date Ordered	Date Received
$5.86	$58.60	12-Sep	17-Sep
$40.26	$80.52	12-Sep	17-Sep
$4.20	$42.00	6-Sep	12-Sep
$6.19	$74.28	6-Sep	12-Sep
$3.20	$48.00	6-Sep	12-Sep
$3.40	$17.00	6-Sep	12-Sep
$4.10	$32.80	6-Sep	12-Sep
$12.20	$61.00	8-Aug	11-Aug
$7.33	$36.65	8-Aug	11-Aug
	=SUM(F6:F14)		

4. Press Enter, and the result will appear.

7. Charts

It can be difficult to interpret Excel workbooks that contain a lot of data. Charts allow you to illustrate your workbook data graphically, which make it easy to visualize comparisons and trends.

Understanding charts

Excel has several types of charts, allowing you to choose the one that best fits your data. To use charts effectively, you'll need to understand how different charts are used. In addition to chart types, you'll need to understand how to read a chart. Charts contain several elements, or parts that can help you interpret data.

Offline Topics: Excel has a variety of chart types, each with its own advantages. Watch Video 21- Chart Types to see some of the different types of charts available in Excel. Also charts contain several elements; you can know these elements by watching Video 22- Charts Elements.
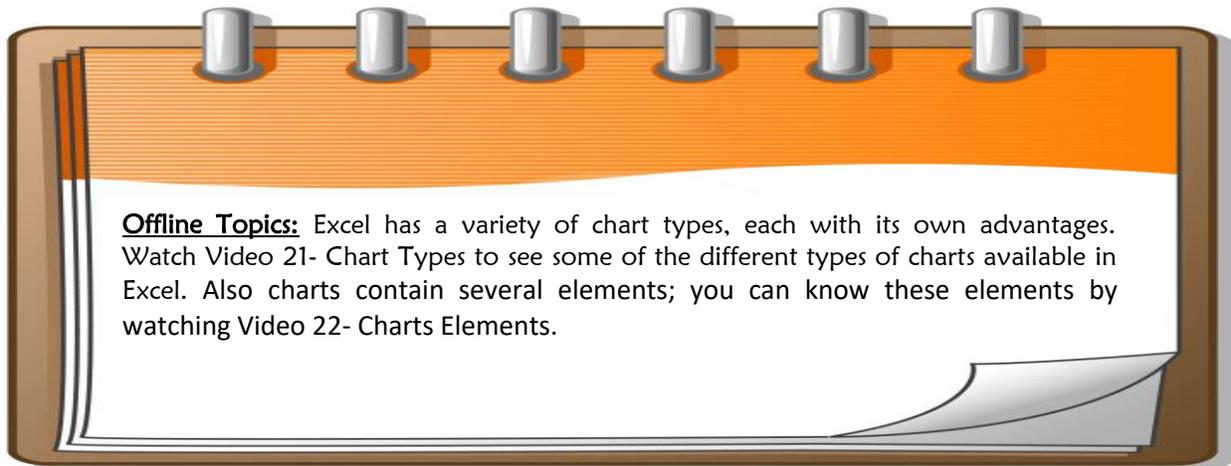
To insert a chart:

- Select the cells you want to chart, including the column titles and row labels. These cells will be the source data for the chart. In our example, we'll select cells A1:F6.

	A	B	C	D	E	F	G
1	Genre	January	February	March	April	May	
2	Classics	$18,580	$49,225	$16,326	$10,017	$26,134	
3	Mystery	$78,970	$82,262	$48,640	$49,985	$73,428	
4	Romance	$24,236	$131,390	$79,022	$71,009	$81,474	
5	Sci-Fi & Fantasy	$16,730	$19,730	$12,109	$11,355	$17,686	
6	Young Adult	$35,358	$42,685	$20,893	$16,065	$21,388	
7							
8							

- From the Insert tab, click the desired Chart command. In our example, we'll select Column.
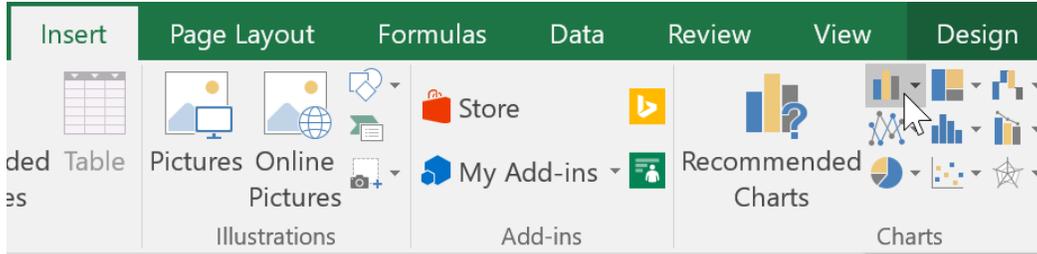

- Choose the desired chart type from the drop-down menu.
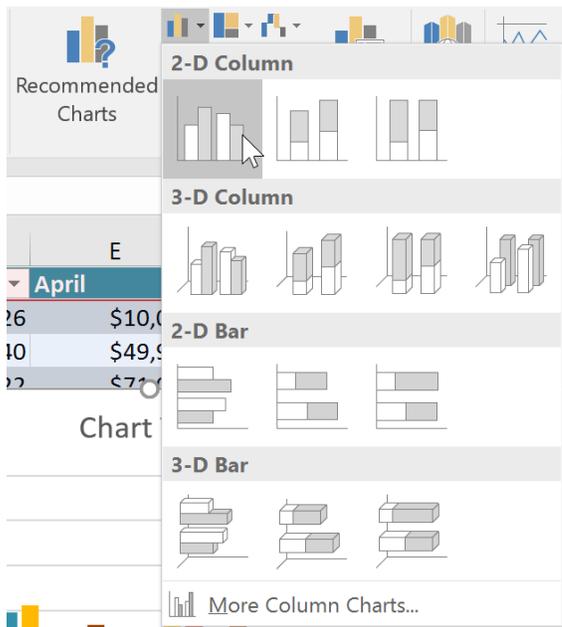
- The Selected chart will be inserted into the worksheet.
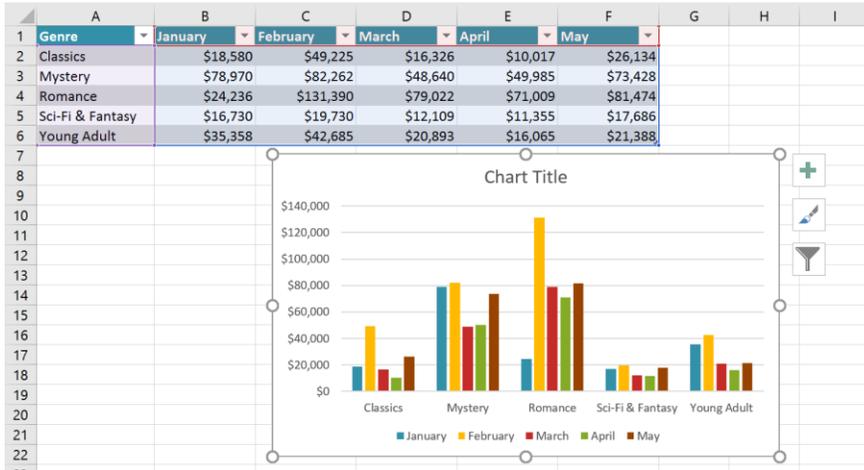
- If you're not sure which type of chart to use, the **Recommended Charts** command will suggest several charts based on the source data.