

# Lesson 4-3: Format numbers using built-in number formats

## Formatting fundamentals

When you format a number you never change its value. For example if you format the number:

483.45495

... so that it only displays two decimal places. The number displays like this:

483.45

It is important to realize that the actual value in the cell remains at the old value of 483.45495. All we have done is to change the way in which the value is presented to the user.

### note

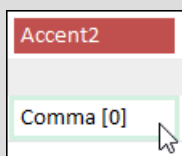
#### The Comma[0] and Currency[0] Styles

With pre-2007 versions of Excel, I was forever applying the comma style and then removing the decimal places as a quick way to add the thousand separators to whole numbers. This used to take three clicks (comma style | decrease decimal | decrease decimal).

Excel 2013 saves a click with the Comma[0] and Currency[0] styles.

To apply these styles click:

Home→Styles→Cell Styles→Comma[0] or Currency[0]

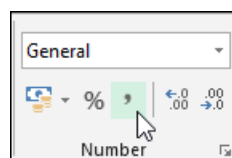


You'll be learning a lot more about cell styles later in this session.

- 1 Open *Sales Week Ended 14<sup>th</sup> March 2008-1* from your sample files folder.
- 2 Apply the comma style to column E.

There is an extremely useful quick format button called the *comma style*. This is perfect for formatting monetary values with a single click. The comma style places a comma after thousands and displays exactly two decimal places.

1. Select all of Column E.
2. Click: Home→Number→Comma Style.

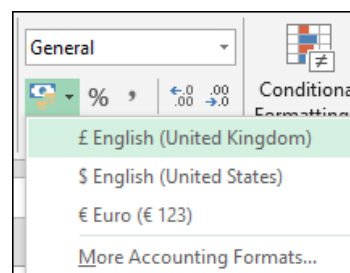


3. Widen column E if necessary so that it is wide enough to display the contents.

All of the values in Column E now display correctly.

	D	E	F	G
1	Country	Amount	Tax	Total
2	Canada	1,447.50	0.175	1700.8125
3	Spain	365.89	0.175	429.92075

Note that you can also use the *Accounting Number Format* style.



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## note

### Solutions to the “penny rounding” problem

Formatting a floating point number to two decimal places often results in the *penny rounding problem* when you sum a column of numbers.

There are two solutions to the problem. One is a very good solution, the other can cause problems.

#### Best practice

The best solution to the problem is to address it when the column is first calculated.

In this lesson’s example worksheet the formula used to calculate the value in cell G2 is:

`=E2*(F2+1)`

Excel has a Round() function that can be used to round the result to two decimal places at the point of calculation.

The new formula would become:

`=ROUND(E2*(F2+1),2)`

#### Changing precision

Click:

File→Options→Advanced

In the *When Calculating This Workbook* group click the *Set precision as displayed* check box.

This alters the default behaviour of Excel so that each value in the worksheet is regarded as being precisely the same as its display value when performing calculations.

Using this option can cause data to become inaccurate as it is a global setting, affecting the entire worksheet (and any other worksheets you may open before turning it off).

Use this feature with extreme caution, or better still, don’t use it at all!

This is very similar to the comma style but adds a leading currency symbol and an appropriate number of decimal places. The *More Accounting Formats...* option supports a vast number of international currency styles.

Try the *Accounting Number Format* style out to see how it works. I’ve found that the comma style is more appropriate for most of my work, as I’m usually working in one country and one currency, making the currency type obvious.

### 3 Apply the comma style to column G.

Column G has many decimal places in some cases, as the sales tax calculation results in as many as six decimal places.

Apply the comma style to column G and notice how all of the values are displayed rounded to the nearest two decimal places.

**1380.33125** Becomes **1,380.33**

**879.82825** Becomes **879.83**

It is a key concept (as discussed in the introduction to this lesson) to realize that the values in the cells have not changed. For example, if you add two cells containing the value 1.4, the result will be 1.4+1.4=2.8. If you then format the cells as whole numbers you’ll see that 1+1=3 as each number is rounded up or down.

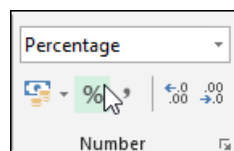
See the sidebar for potential solutions to this problem.


### 4 Apply the percentage style to column F.

The example sales tax rate is 17.5%. When working with percentages, it is useful to enter them so that you can calculate a percentage simply by multiplying by the cell.

Instead of 17.5 (more readable) the values are entered as 0.175 (easier to use in formulas). In order to make percentages both readable and easy to use, Microsoft has created the percentage style. If you type 17.5% into a cell, the actual value within the cell will be 0.175.

1. Select column F.
2. Click: Home→Number→Percentage Style.



3. Click: Home→Number→Increase Decimal  once, to make the values in column F display one decimal place.

	D	E	F	G
1	Country	Amount	Tax	Total
2	Canada	1,447.50	17.5%	1,700.81
3	Spain	365.89	17.5%	429.92

### 5 Save your work as *Sales Week Ended 14<sup>th</sup> March 2008-2*.