Rounding in Excel

The one page reference. Formatting shows a number. Only a formula changes one.

XcelWiz
#LearningEveryDay

WHY THE TOTAL IS OUT BY A CENT

A cell format changes the display and nothing else. The stored number keeps every digit, and SUM adds the stored numbers, not the ones on screen.

STORED	SHOWN AT 2 DP
10.004	10.00
10.004	10.00
10.004	10.00
30.012	30.01

Your eye totals 30.00. Excel totals 30.01. Both are right.

ROUND, AND THE SECOND ARGUMENT

`=ROUND(number, num_digits)`

Both arguments are required. `num_digits` is a position, and it works either side of the decimal point.

FORMULA	GIVES	ROUNDS TO
=ROUND(1234.567, 2)	1234.57	hundredth
=ROUND(1234.567, 1)	1234.6	tenth
=ROUND(1234.567, 0)	1235	whole number
=ROUND(1234.567, -1)	1230	ten
=ROUND(1234.567, -2)	1200	hundred
=ROUND(1234.567, -3)	1000	thousand

Negative digits are how you report to the nearest thousand without a helper column.

NEVER USE THIS

File > Options > Advanced > **Set precision as displayed** permanently overwrites every stored value in the workbook with its displayed value. Whole file, not your selection, and it cannot be undone once saved. Round with a formula instead.

THE EIGHT YOU NEED

FUNCTION	WHAT IT DOES
ROUND	Nearest. Halves go away from zero.
ROUNDUP	Always away from zero.
ROUNDDOWN	Always towards zero.
MROUND	Nearest multiple you name, such as 0.05.
CEILING.MATH	Up to a multiple. Pack sizes, pallets.
FLOOR.MATH	Down to a multiple. Billing blocks, bands.
INT	Down to the next whole number, always down.
TRUNC	Cuts the decimals off, no rounding.

INT AGAINST TRUNC

They agree on positive numbers, which is why the difference goes unnoticed for years. On negatives they part company by a whole unit.

`INT(-2.5) = -3     TRUNC(-2.5) = -2`

If your data holds credits, refunds or negative variances, know which one you are using.

WHERE TO ROUND

Two defensible methods. Mixing them in one workbook is where the missing cent comes from.

METHOD A

Round each line, then add

Invoices, VAT, anything a customer or tax authority will check. Every line has to be a real amount that can be paid.

METHOD B

Add, then round once

Analysis, forecasting, reconciliation. Keep full precision through the working and round at the point of presentation.

Pick one per workbook, write down which, and round in a visible column rather than in a number format.

Now go and break it on purpose

Reading about rounding fixes nothing. There is a practice workbook with six tabs, a self marking check column and a 12 line invoice worked out both ways.

Free, no signup
xcelwiz.com/lessons/round-in-excel.html