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Basic Operations in Excel

IF statements in Excel

Percents/Decimals/Fractions/Scientific Notation – converting between, formatting, translating
Proportions

Tables of Data/Pivot Tables in Excel

Percent Change

Basic things you can do in Excel:

Table: can use words or numbers and use the table to organize information

Use it as a calculator

=3+6, you can also do subtraction with -, multiplication *, or division with /, and powers with ^

Repeat calculations of the same type on lots of values but copying formulas and using cell references

Cell reference is the name of cell in the Excel table. The columns are letters A, B, C... and the rows are numbers 1, 2, 3, etc. And so any one cell is A1 is the top position in the first column. D7 is the 4th column (D) and the 7th row.

This allows to create formulas so that if I update a value, the calculation based on it is automatically redone.

It also allows us to make repeated calculations on sets of data. Setting the cell references correctly allows us to create a formula one time and reuse it on multiple values.

By default, cell references in Excel are “relative references”.

To make a relative cell reference in to an absolute cell reference (that does not change), put a \$ in front of the row or column that you want to remain fixed. You can fix the column, only the row, or both.

If statements: logical statements

Proportions

Part/Whole

Can be expressed as fractions, percentages, decimals (0 – 1), scientific notation

Fractions: $\frac{x}{y}$, and x,y are whole numbers

Percentages (0%, 100%), “parts per 100”

Decimals: 0.1, 0.01, 0.001, 0.0001, etc..

Each digit is dividing by another power of 10, so 0.1 = 1/10, 0.01= 1/100, 0.001=1/1000,
0.0234=234/10,000

Scientific notation

$$2.6 \times 10^n$$

The number in front of the decimal must be between 1 and 9 (no 0), and the power n is positive if the number is large, if the number is very small, then the n is negative

$$2.6 \times 10^6 = 2,600,000$$
$$2.6 \times 10^{-4} = 0.00026$$

Excel displays these numbers as 2.6E06, and 2.6E-04.

E= $\times 10^$

Don't use the E notation from Excel in an answer. When you write out the scientific notation use standard form with powers of 10.

Pivot Tables

See Excel

Percent Change

When a number is changing over time, we want to know the relative change; if the value is growing at a consistent rate, then the percent change will be the same (approximately so).

$$\frac{\text{new value} - \text{old value}}{\text{old value}}$$

3, 4, 5, 6,...

$$\frac{4 - 3}{3} = \frac{1}{3} = 33.3\%$$

$$\frac{5 - 4}{4} = \frac{1}{4} = 25\%$$

2, 4, 8, 16, ...

$$\frac{4 - 2}{2} = \frac{2}{2} = 100\%$$

$$\frac{8 - 4}{4} = \frac{4}{4} = 100\%$$

If there is a decrease, the percentage change will be negative.