(If you completed this page last lesson then go straight to the task. If you didn’t you will need to complete this first to understand how Standard Form is used.)

200 could be written as 2 x 102.

300 could be written as 3 x 102.

250 could be written as 2.5 x 102.

Complete the table on the left, the first three rows have been completed for you.

|  |  |
| --- | --- |
| **Number** | **Number in standard form** |
| 200 |  |
| 230 |  |
| 300 |  |
| 399 |  |
| 400 |  |
| 415 |  |
| 500 |  |
| 550 |  |
| 9870 |  |

# Very Big and Very Small Numbers

This part is written as a power of 10, and the power is a whole number.

As the number is less than one the power of ten is negative.

The power of ten is the place value of the first significant figure.

|  |  |
| --- | --- |
| **Number** | **Number in standard form** |
| 1 000 000 | 1 x 106 |
| 100 000 | 1 x 105 |
| 10 000 | 1 x 104 |
| 1 000 |  |
| 100 |  |
| 10 |  |
| 1 |  |
| 0.1 |  |
| 0.01 |  |
| 0.001 |  |

Mathematicians, scientists and engineers (and your calculator) prefer to write and work with very large and very small numbers in standard form.

A number is in standard form when it is written like this:

6.7 x 106

You could think of 1000 as being 1 x 10 x 10 x 10 and write it as 1 x 103 .

You could think of 10 000 as being 1 x 10 x 10 x 10 x 10 and write it as 1 x 104.

Complete the table below, the first three rows have been completed for you.

This part is made up of a number from 1 up to (but not including) 10.

To subtract numbers written in standard form you must write them to the same power of ten.

e.g.

3 x 105 - 4 x 104 = 30 x 104 - 4 x 104 = 26 x 104 =2.6 x 105

**Write the larger number to the same power of ten as the smaller number.**

# Subtracting Very Big and Very Small Numbers

|  |  |  |
| --- | --- | --- |
| **Numbers to Subtract** | **Calculation** | **Answer in standard form** |
| 5 x 103 - 5 x 102 |  |  |
| 5 x 104 - 5 x 102 |  |  |
| 5 x 105 - 5 x 102 |  |  |
| 5 x 104 - 5 x 103 |  |  |
| 5 x 105 - 5 x 103 |  |  |
| 5 x 106 - 5 x 103 |  |  |
| 4 x 103 - 3.1 x 102 |  |  |
| 4.1 x 103 - 3.1 x 102 |  |  |
| 5 x 10-2 - 5 x 10-3 |  |  |
| 5 x 102 - 5 x 10-1 |  |  |