

Resource Scientific Notation

Writing numbers in different forms

Numbers can be written in many different forms. For example:

$$50 = 5 \times 10$$

$$400 = 40 \times 10 \text{ or } 4 \times 100 \text{ or } 4 \times 10^2$$

$$7,000 = 700 \times 10 \text{ or } 70 \times 100 \text{ or } 7 \times 1000 \text{ or } 7 \times 10^3$$

Similarly:

$$52 \text{ can be written as } 5.2 \times 10$$

$$473 \text{ can be written as } 47.3 \times 10 \text{ or } 4.73 \times 100 \text{ or } 4.73 \times 10^2$$

$$7,549 = 754.9 \times 10 \text{ or } 75.49 \times 100 \text{ or } 7.549 \times 1000 \text{ or } 7.549 \times 10^3$$

Look at the last form in each row. Notice that they all have a single non-zero digit in front of the decimal place. Each form is written as a number greater than or equal to 1 and less than 10, multiplied by a power of 10. This means that the numbers are expressed in scientific notation.

A number in **scientific notation** is written in the form:

$$a \times 10^n \text{ where } 1 \leq a < 10; \text{ and } n \text{ is an integer.}$$


 1 is included and 10 is not included

7.549×10^3 is in scientific notation (7 is a number between 1 and 10 multiplied by a power of 10).

75.49×10^2 is not in scientific notation (because 75 is not between 1 and 10).

7.549×100^3 is not in scientific notation (because 100^3 is not written as a power of 10).

