

Conditions

what is the standard form for the scientific notation- 5.15×10^2

Solution

Brief theory:

Astronomers, biologists, engineers, physicists and many others encounter quantities whose measures involve very small or very large numbers. For example, the distance of the earth from the sun is approximately 144,000,000,000 metres and the distance that light will travel in 1 year is 5,870,000,000,000 metres.

It is sometimes tedious to write or work with such numbers. This difficulty is overcome by writing such numbers in standard form.

$$\begin{array}{l} \text{E.g.} \quad 144,000,000,000 = 1.44 \times 10^{11} \\ \quad 5,870,000,000,000 = 5.87 \times 10^{12} \end{array}$$

If a quantity is written as the product of a power of 10 and a number that is greater than or equal to 1 and less than 10, then the quantity is said to be expressed in **standard form** (or **scientific notation**). It is also known as **exponential form**.

For our example:

$$5.15 \cdot 10^2 = 5.15 \cdot 100 = 515$$

Answer: 515