

Learning How to Put Scientific Notation into Everyday Expression

Going from exponential notation to everyday expression is a bit easier than writing an ordinary number in scientific notation because the number that you are dealing with comes with built-in instructions. If the number ends with $\times 10^3$ (a positive exponent), it is simply telling you to multiply by 1,000, or move the decimal point three places to the right. If the number ends with $\times 10^{-4}$ (a negative exponent), it is telling you to divide by 10,000, or move the decimal point four places to the left.

Examples:

$$\begin{array}{l} 3.24 \times 10^2 = \quad \quad \quad \overset{3}{\quad} \overset{2}{\quad} \overset{4}{\quad} = \quad 324 \\ 5.68 \times 10^{-3} = \quad \quad \quad \underbrace{\quad \quad \quad}_5 \quad \underbrace{\quad \quad \quad}_6 \quad \underbrace{\quad \quad \quad}_8 = \quad 0.00568 \end{array}$$

Notice that in the second example we *have* to put in place-holder zeros to show the decimal value of the number.

Look at this example:

$$9.2 \times 10^4 = \quad \quad \quad \underbrace{9,2000}_0 = \quad 92,000$$

We also had to add place-holder zeros here to give the correct decimal value of the number, but this blurs the measurement value. In later pages, we will learn how to deal with these ambiguous zeros. Until we get there, we will simply write them as if it didn't matter!