

Standard Form

Sometimes in Maths, we have long complicated numbers that are too long to write out. With standard form, you can write a number between 1 and 10 multiplied by a power of 10. This is Standard form. (number between 1 and 10) x 10^{power}

Where are there examples of Standard Form?

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We can see standard form in Maths when we use calculators. If we have a sum of numbers that have many digits. For example, I want to find out what $987654321 \times 123456789 =$

On my calculator, the following answer came up: $1.219326311 \times 10^{17}$

However, my sum cannot have the answer 1.2. **This is not the answer**

This is the number that has to be multiplied by 10 to the power of 17. This basically means that the standard form answer

1.219326311 has to be multiplied by 10^{17} (this is 10 multiplied 17 times by itself)

So $1.219326311 \times 100\,000\,000\,000\,000\,000 = 1219326311000000000$

This makes a lot more sense. So we found out how to convert numbers in standard form into their original state. So how do we change any number into standard form? That's what we're going to find out now.

Writing numbers in Standard Form



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Example

Write the number **43 279 000** in Standard Form. We have to find a number between 1 and 10 using the digits as they appear. This is clearly 4.3279 and to get back to the original number we need to move the decimal point 7 places to the right.

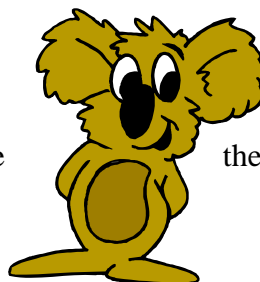
$$43\,279\,000 = 4.3279 \times 10^7 \text{ in standard form}$$

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Very small numbers

0.00043279 is still 4.3279 if it were viewed as a
To get back to the original number we need to move the left.

$$0.00043\,279 = 4.3279 \times 10^{-4} \text{ in standard form}$$



number between 1 and 10.
the decimal point 4 places to

Working with a calculator

Entering a number directly in standard form on your calculator involves using the **EE** or **Exp** button.

To multiply 4.32×10^7 by 5.79×10^8 try entering [4.32] [EE] [7] x [5.79] [EE] [8] =

You may have to experiment with your particular make of calculator.

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