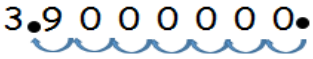
Scientific Notation or Exponentials

MTH 3-06a Having explored the notation and vocabulary associated with whole number powers and the advantages of writing numbers in this form, I can evaluate powers of whole numbers mentally or using technology.

In mathematics scientific notation consists of a number between 1 and 10 multiplied by some power of 10

Writing in scientific notation

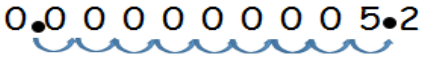
Write 39,000,000 in scientific notation?



= 3.9×10^{7}

The point moves 7 places to the left and as it is a big number it is a positive power

Write 0.0000000052 in scientific notation?



= 5.2×10^{-9}

The point moves 9 places to the right and as it is a small number it is a negative power

More Examples

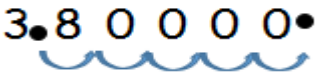
27 800 000 = 2.78×10^{7} 600 000 = 6×10^{5} 0.0000789 = 7.89×10^{-5}

Writing whole numbers from Scientific notation

Write 3.8×10^{5} in full?

Use the first part of the scientific notation and count how many places the decimal is going to move.

Fill in the spaces with zeros



Then write the number out properly

3 8 0 0 0 0

More examples

4.86×10^{6} = 4,860,000 7.6548×10^{8} = 765,480,000 7.914×10^{-7} = 0.0000007914

How Science do it –

Science uses the term - exponential and often they only use 10 raised to a power.

$10^{3} = 10 \times 10 \times 10 = 1000$

10^{-3} = 0.001 10^{6} = 1000000 10^{-6} = 0.000001