

STANDARD FORM

Note Title

24/04/2009

This is a way of writing very large or very small numbers without having to use lots of zeros.

A number in standard form is

$$a \times 10^n$$

a must be between 1 and 10

n shows how many places to move the decimal point

Examples

- ① There are about 5.9×10^9 people in the world.
Write this as an ordinary number.

$$5.9 \quad \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad .$$

nine jumps

so 5900000000

- ② Write 3.6×10^{-5} as an ordinary number

$$\overset{\curvearrowleft}{\quad} \overset{\curvearrowleft}{\quad} \overset{\curvearrowleft}{\quad} \overset{\curvearrowleft}{\quad} \overset{\curvearrowleft}{\quad} 0 \quad 0 \quad 0 \quad 0 \quad 3.6$$

so 0.000036

- ③ Write 934000000 in standard form.

$$934 \quad \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} \overset{\curvearrowright}{\quad} 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad .$$

= 9.34×10^8

④

Write 0.003 in standard form

$$0.\overset{\curvearrowright}{0}\overset{\curvearrowright}{0}\overset{\curvearrowright}{3}$$

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

[Large numbers have a positive power of 10,
small numbers have a negative power of 10]