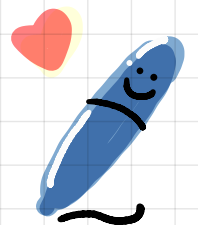


1.7) Standard Form



Numbers: Standard Form.

$$A \times 10^n \rightarrow 1 \leq A < 10$$
$$\rightarrow n \text{ is integer}$$

Review

$1 =$

$10 =$

$100 =$

$1000 =$

35000

Numbers: Standard Form.

240

40000

10500

573

54321

32

7

Review

$$0.12 =$$

or

$$0.003 =$$

and

$$\frac{1}{1000} =$$

$$\frac{1}{100000} =$$

and

$$10^m \times 10^n = 10^{m+n}$$

0.0035

12.5

0.003

0.0105

0.00001

0.0004532

0.72

1.2

453.15

Numbers: Standard Form.

TOP Maths IGCSE

$$30.251 \times 10^5$$

$$425 \times 10^{-2}$$

$$0.25 \times 10^3$$

$$0.25 \times 10^{-4}$$

$$4900 \times 10^5$$

$$4900 \times 10^{-5}$$

$$0.00359 \times 10^m$$

$$340000 \times 10^n$$

$$0.00421 \times 10^{2n}$$

Standard form \longrightarrow Ordinary number

$$3.5 \times 10^7$$

$$4.27 \times 10^{-4}$$

$$1.000521 \times 10^2$$

Give your answer in standard form.

Example : Calculator

$$1) (9 \times 10^8) \times (4 \times 10^7)$$

$$2) 5.2 \times 10^4 + 4.71 \times 10^5$$

$$3) \frac{4.2 \times 10^5}{3 \times 10^{-4}}$$

$$4) (5.21 \times 10^{-2}) - (2.5 \times 10^{-3})$$

Give your answer in standard form.

Example : ~~Calculator~~

$$1) (1.41 \times 10^{140}) + (4.2 \times 10^{141})$$

$$2) (4.25 \times 10^{130}) (5.2 \times 10^{12})$$

$$3) \frac{(1.44 \times 10^{130})}{(1.5 \times 10^{125})}$$

$$4) \sqrt{1.44 \times 10^{40}}$$

Extra: Expression in standard form.

$$a \times 10^5 \text{ where } 10 < a < 100$$

Numbers: Standard Form.

Extra: Expression in standard form.

$$a \times 10^5 \text{ where } 100 < a < 1000$$

Example: $x = P \times 10^n$ where n is an integer and $\sqrt{10} \leq P < 10$

Find, in standard form, an expression for x^2 .

Give your expression as simply as possible.

Example: Each of the numbers A , B and C is greater than 1 and less than 10

$$A \times 10^8 + B \times 10^7 = C \times 10^8$$

Find an expression for C in terms of A and B

Example: Each of the numbers 3×10^m , 4×10^n and $p \times 10^r$ is in standard form.

$$\frac{3 \times 10^m}{4 \times 10^n} = p \times 10^r$$

(i) Find the value of p

(ii) Find an expression for r in terms of n and m