

Standard Form is a convenient way of writing very large or very small numbers. It is written in the form $a \times 10^n$ where 'a' is a number between 1 and 9. Large numbers can be multiplied in standard form. Simply multiply the whole numbers first and then ADD the indices for the powers of 10. If the whole number is greater than 9, then readjust your answer to make it a number between 1 and 9, ensuring your index is also adjusted accordingly. **Remember $10^0 = 1$.**

$$(3 \times 10^3) \times (5 \times 10^2)$$

$$= (3 \times 5) \times (10^{3+2})$$

$$= 15 \times 10^5 \text{ (this is not in standard form)}$$

$$= 1.5 \times 10^6 \text{ (this is in standard form)}$$

$$(4 \times 10^{-5}) \times (8 \times 10^2)$$

$$= (4 \times 8) \times (10^{-5+2})$$

$$= 32 \times 10^{-3} \text{ (this is not in standard form)}$$

$$= 3.2 \times 10^{-2} \text{ (this is in standard form)}$$

$$(7.2 \times 10^{-4}) \times (2.2 \times 10^{-5})$$

$$= (7.2 \times 2.2) \times (10^{-4+(-5)})$$

$$= 15.84 \times 10^{-9} \text{ (this is not in standard form)}$$

$$= 1.584 \times 10^{-8} \text{ (this is in standard form)}$$

1. Multiply the following:

a) $(3 \times 10^2) \times (4 \times 10^4)$

b) $(4 \times 10^5) \times (6 \times 10^2)$

c) $(9 \times 10^6) \times (8 \times 10^3)$

d) $(5 \times 10^2) \times (6 \times 10^3)$

e) $(2 \times 10^2) \times (7 \times 10^4)$

f) $(9 \times 10^7) \times (5 \times 10^5)$

2. Multiply the following:

a) $(6 \times 10^{-1}) \times (4 \times 10^3)$

b) $(9 \times 10^3) \times (2 \times 10^{-4})$

c) $(3 \times 10^{-2}) \times (8 \times 10^7)$

d) $(7 \times 10^{-5}) \times (5 \times 10^3)$

e) $(5.5 \times 10^{-4}) \times (7 \times 10^8)$

f) $(1.5 \times 10^{-3}) \times (4 \times 10^{-5})$

3. Use the following to answer the questions below: $A = 5 \times 10^{-4}$ $B = 3 \times 10^7$ $C = 8.5 \times 10^3$ $D = 1.5 \times 10^{-2}$

a) $D \times C$

b) $A \times B$

c) $B \times D$

d) $A \times D$

4. Use the following to answer the questions below:

$$H = 4 \times 10^6 \quad J = 1.3 \times 10^{-3} \quad K = 3.6 \times 10^5 \quad L = 6.1 \times 10^{-2}$$

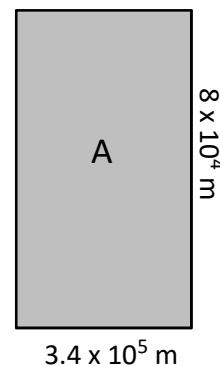
a) $H \times K$

b) $J \times L$

c) $H \times L$

d) H^2

5. A rectangular field has the dimensions shown below. Find the area of the field in standard form.



A: _____