SCIENTIFIC NOTATION

- A faster way to write very large or very small #'s

FORMAT: 4.46   x 10^4 ← exponent

(always a # between 1→9.999)   **(always x 10)**

Going from scientific TO decimal notation:

ex: 7.43×10^3 ⟶ 7430

 The exponent tells you ALOT

+ exponent = jumps to the <u>right from the decimal</u>

- exponent = jumps to the <u>left from the decimal</u>

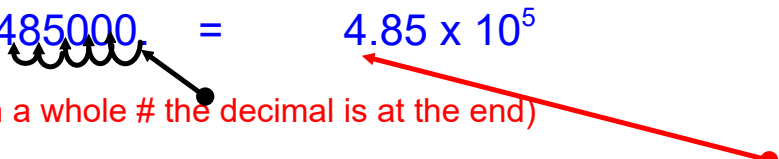*** If there is no decimal, it's there, after the 1st whole # ***

ex: 6.8×10^{-4} .6.8 = .00068

       7×10^3 7   . = 700

Going from decimal to scientific:

ex: 485000.   = 4.85×10^5

(On a whole # the decimal is at the end)

The main # in scientific notation MUST be less than 10!!!!

A large # (more than 1) has a positive exponent

A small # (less than 1) has a negative exponent

$\div \times + -$ in scientific notation

+ /- : Turn each scientific notation INTO decimal notation,

add or subtract the #s and turn back into scientific notation

ex: $(5.2 \times 10^3) + (6.1 \times 10^4)$

     5200   +   61000   =   66,200 ⟶ 6.62×10^4

$\div \times$:

1) $\times$ or $\div$ the 1st part (base #),

2) subtract exponent if you $\div$ **OR**   add the exponents if you $\times$

add!

ex: $(1.8 \times 10^7) \times (2.7 \times 10^3) = 4.86 \times 10^{10}$

multiply

<u>FIXING SCIENTIFIC NOTATION ANSWERS</u>

- When the main # is too big or too small after you ✕ or ÷

ex: 25.6×10^3

it's too big!

<u>FOR POSITIVE or NEGATIVE EXPONENTS</u>

Decimal moves LEFT?

increase exponent by the # of jumps

ex: 25.6×10^3 add!!

= 2.56×10^4

ex: 38.57×10^{-4} add!!

= 3.57×10^{-3}

Decimal moves RIGHT?

decrease exponent by the # of jumps

ex: $.34 \times 10^5$ subtract!!

= 3.4×10^4

ex: $.486 \times 10^{-7}$ subtract!!

= 4.86×10^{-8}