OPERACIONES CON NOTACIÓN CIENTÍFICA



Analiza el siguiente video con mucha atención.

Realiza las siguientes operaciones con cantidades expresadas en notación científica, sin usar calculadora.



SUMA Y RESTA

A)

$345.6 \times 10^{21} + 17.2 \times 10^{19} = 345.6 \times 10^{21} + 0.17 \times 10^{\square} = \square \times 10^{\square}$

$6.27 \times 10^{33} + 54.3 \times 10^{32} = 6.27 \times 10^{33} + \square \times 10^{\square} = \square \times 10^{\square}$

$4.82 \times 10^{-17} - 7.3 \times 10^{-19} = 4.82 \times 10^{-17} - \square \times 10^{-\square} = \square \times 10^{-\square}$

$42.2752 \times 10^{27} - 183.71 \times 10^{25} = 42.2752 \times 10^{27} - \square \times 10^{\square} = \square \times 10^{\square}$

$560 \times 10^{36} - 26.1 \times 10^{39} = \square \times 10^{\square} - 26.1 \times 10^{39} = \square \times 10^{\square}$

$0.76 \times 10^{-28} - 30 \times 10^{-30} = 0.76 \times 10^{-28} - \square \times 10^{-\square} = \square \times 10^{-\square}$

LIVEWORKSHEETS

MULTIPLICACIÓN

B)

$(36\times10^{5})(2\times10^{11}) = 72\times10^{\square} = 7.2\times10^{\square}$

$-(4\times10^{-3})(3\times10^{8}) = -12\times10^{\square} = -1.2\times10^{\square}$

$(-20\times10^{-12})(50\times10^{-2}) = -1000\times10^{\square} = -1\times10^{\square}$

$(7\times10^{3})(0.03\times10^{-4}) = 0.21\times10^{\square} = 2.1\times10^{\square}$

$(-12\times10^{7})(-2\times10^{-3}) = 24\times10^{\square} = 2.4\times10^{\square}$

$(0.5\times10^{-11})(400\times10^{-2}) = 200\times10^{\square} = 2\times10^{\square}$

En multiplicación, los exponentes se suman:

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

DIVISIÓN

C)

$\frac{22.6\times10^{15}}{2\times10^{4}} = 11.3\times10^{\square} = 1.13\times10^{\square}$

$\frac{-3\times10^{-23}}{6\times10^{6}} = -0.5\times10^{\square} = -5\times10^{\square}$

$\frac{210\times10^{14}}{5\times10^{-8}} = 42\times10^{\square} = 4.2\times10^{\square}$

$\frac{3.6\times10^{12}}{12.2\times10^{20}} = 0.2951\times10^{\square} = 2.951\times10^{\square}$

$\frac{33\times10^{-7}}{-3\times10^{-5}} = -11\times10^{\square} = -1.1\times10^{\square}$

$\frac{2\times10^{11}}{50\times10^{9}} = 0.04\times10^{\square} = 4\times10^{\square}$

En división, los exponentes se restan:

$\frac{x^{m}}{x^{n}} = x^{m-n}$



POTENCIA

D)

$(5\times10^{14})^{2} = 25\times10^{\square} = 2.5\times10^{\square}$

$(-6\times10^{-22})^{3} = \cdot216\times10^{\square} = \cdot2.16\times10^{\square}$

$(4\times10^{-21})^{3} = 64\times10^{\square} = 6.4\times10^{\square}$

$(-8\times10^{32})^{2} = \square\times10^{\square} = \square\times10^{\square}$

$-(13\times10^{18})^{2} = -\square\times10^{\square} = -\square\times10^{\square}$

$(-2\times10^{9})^{-4} = \square\times10^{\square} = \square\times10^{\square}$

En potencia, los exponentes se multiplican:

$(x^{m})^{n} = x^{mn}$

LIVEWORKSHEETS



RAÍZ CUADRADA

E)

(Potencia par)

$\sqrt{256x10^{32}} = 16x10^{\square} = 1.6x10^{\square}$

$\sqrt{529x10^{-54}} = 23x10^{-\square} = 2.3x10^{-\square}$

$\sqrt{121x10^{-40}} = 11x10^{-\square} = 1.1x10^{-\square}$

(Potencia impar)

$\sqrt{102.4x10^{25}} = \sqrt{1024x10^{\square}} = 32x10^{\square} = 3.2x10^{\square}$

$\sqrt{4840x10^{-21}} = \sqrt{484x10^{-\square}} = \square x10^{-\square} = \square x10^{-\square}$

$\sqrt{22.5x10^{17}} = \sqrt{225x10^{\square}} = \square x10^{\square} = \square x10^{\square}$

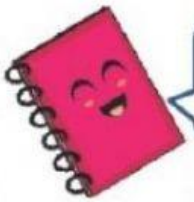
$\sqrt{160x10^{-9}} = \sqrt{1600x10^{-\square}} = \square x10^{-\square} = \square x10^{-\square}$

$\sqrt{129.6x10^{-31}} = \sqrt{1296x10^{-\square}} = \square x10^{\square} = \square x10^{\square}$

En raíz, los exponentes se dividen:

$\sqrt[n]{x^m} = x^{m/n}$

Para que quede entero el exponente final, se debe volverse par.



OPERACIONES COMBINADAS

F)

$$\frac{(8x10^{-22})(-5x10^{6})}{(-2x10^{-12})^2} = \frac{40x10^{-\square}}{4x10^{-\square}} = 10x10^{\square} = 1x10^{\square}$$

$$\frac{(-6x10^{-7})^3}{2\sqrt{16x10^{18}}} = \frac{-216x10^{-\square}}{2(4x10^{\square})} = \frac{-216x10^{-\square}}{8x10^{\square}} = -27x10^{-\square}$$

Listo!
Ya terminamos!



LIVEWORKSHEETS