1 n 10

❖ n

10 n 10^n

$10^n = \underbrace{10 \times 10 \times 10 \times 10 \times \ldots\ldots\ldots\ldots \times 10}_{n}$



$10^4 = \underbrace{10 \times 10 \times 10 \times 10}_{4\text{عوامل}}$

$10^4 = \underbrace{10000}_{4\text{أصفار}}$

$10^n = \underbrace{100\ldots\ldots\ldots 0}_{n\text{صفرًا}}$

n 10 10^n

❖ n

10^n 10^{-n}

$10^{-n} = \frac{1}{10^n}$

$10^{-3} = \frac{1}{10^3} = \frac{1}{1000} = 0{,}001$ (3)

n) $10^{-n} = \frac{1}{10^n} = 0{,}0000\ldots.01$

2 10

❖ m n 10

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

1) $10^2 \times 10^3 = 10^{2+3} = 10^5$

2) $10^{-2} \times 10^3 = 10^{-2+3} = 10^1 = 10$

❖ 10

$$\frac{10^n}{10^m} = 10^{n-m}$$

$\frac{10^4}{10^2} = 10^{4-2} = 10^2 = 100$

$\frac{10^{-4}}{10^{-6}} = 10^{-4-(-6)} = 10^{-4+6} = 10^2 = 100$

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10 ❖

$(10^n)^m = 10^{n \times m}$

1) $(10^3)^2 = 10^{3 \times 2} = 10^6$

2) $(10^3)^{-2} = 10^{3 \times -2} = 10^{-6}$

10 3

10

$0.005=5x10^{-3}$

10

$3000000000= 3x10^9$

p a $ax10^p$

$0.333x10^5$; $7.001x10^{13}$; 0.00007

4

n a $a \times 10^n$

1) $370 = 3,7 \times 10^2$

2) $0,5 = 5 \times 10^{-1}$

5

10

$a \times 10^n$ A

$10^n \leq a \times 10^n < 10^{n+1}$

. a b $b \times 10^n$ A $a \times 10^n$ A

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$A = 3257 \times 10^{23} = 3,257 \times 10^{26}$

$10^{26} \leq 3,257 \times 10^{26} < 10^{27}$

3 3,257 3×10^{26} A

10

1) $0,25 \times 10^{11}$ 2) 1273 3) $0,00273 \times 10^{-12}$

6

n a

n ≥ 2 2 n

$a^n = \underbrace{a \times a \times a \times a \times \ldots\ldots\ldots \times a}_{n}$

$a^{-n} = \frac{1}{10^n}$ $a \neq 0$

$a^n = a$ $n = 1$

$a^0 = 1$ $a \neq 0$ $n = 0$



$5^2 = 5 \times 5$

$-2^5 = (-2) \times (-2) \times (-2) \times (-2) \times (-2) = -32$

a=2

a^{-2} ; a^3 ; $2a^9$; a^5

7

m n b a

$$(a^m)^n = a^{m \times n} \; ; \frac{a^m}{a^n} = a^{m-n} \; ; a^m \times a^n = a^{m+n}$$

$$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n} \quad ; \quad (ab)^n = a^n \times b^n$$

$2^2 \times 2^3 = 2^{2+3} = 2^5$

$\frac{(-3)^4}{(-3)^2} = (-3)^{4-2} = (-3)^2 = 9$

$(3x7)^3 = 3^3 \times 7^3$

$\left(\frac{8}{3}\right)^2 = \frac{8^2}{3^2}$

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$4^2 x 4^3 x 4^5$

$\frac{2^3}{2^2}$; $\left(\frac{6}{7}\right)^2$

8

A = 3 x 2^4 - 2 x 3^2 + 7,1 x +27
A = 3 x 16 – 2 x 8 + 7,1 x 2 +27
A = 48 – 16 + 14,2 + 27
A= 32 +14,2 + 27
A = 46,2 + 27
A = 73,2

A

A=$\frac{3^2 x 6^3}{9^2 x 4^3}$

01

1

$$A = 10^{-7} \times 10^{5} \qquad B = \left(10^{4}\right)^{-2} \qquad C = \frac{10^{-6}}{10^{-11}}$$

2

$$D = 10^{7}\left(10^{-5} - 10^{-7}\right) \qquad E = 10^{10}\left(10^{-13} + 10^{-11}\right)$$

02

1

$$10^{n} \qquad 10000000 \qquad \left(10^{-2}\right)^{3} \qquad \frac{10^{2} \times 10^{-7}}{\left(10^{-4}\right)^{3}} \qquad 0.0001 \qquad 10^{3} \times 10^{9} \times 10^{-12}$$

2

$$10^{-3} \qquad 10^{5} \times 10^{-2} \qquad \frac{10^{6}}{10^{11}}$$

أستاذ
★ بوطيبة . أ ★
الرياضيات

03

$A = \dfrac{0.18\times10^{-7}\times6\times10^{5}}{5\times\left(10^{3}\right)^{2}}$ A

10 A A **.1**

A **.2**

04

n a a^n **1**

$C = 2^{-1}\times4^{5}$ $B = \dfrac{(-3)^{7}}{(-3)^{-3}}\times\dfrac{7^{6}}{7^{-4}}$

$\left((-5)^{-3}\times(-5)^{7}\right)^{2}\times(-5)^{n} = 5^{14}$ n **2**

$D = \dfrac{1}{125\times5^{2}}$ 5^n D **3**

$E = \left(2^{-1}\times4^{5} - 2\times8^{3} + 1.5\times7^{3}\right)^{4}$ E **4**

أستاذ
★ بوطبية . أ ★
الرياضيات

05

n a a^n **1**

$C = 6^{-5}\times6^{7}\times6^{3}$ $B = \left((3)^{-5}\times(-2)^{-5}\right)^{2}$ $A = \dfrac{2^{-4}\times2^{-7}}{2^{-5}\times4^{-5}}$

$D = (-4)^{2} - 3^{3}\times2^{3} + (7 + (-5)^{3})$ D **2**

06

$E = \dfrac{1.5\times10^{3}\times45\times10^{-6}}{5\times10^{5}}$ E

E **1**

E **2**

10 E **3**

07

14 **LOMAC** 2×10^{6} **BIOCARE**

(gélules)

1

2

10 **.3**

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