

## Calculs de puissances

Exercice N°1 : Réduis les expressions suivantes.

- |                           |                           |
|---------------------------|---------------------------|
| 1) $2^3 \times 2^3$ =     | 11) $(4^4)^1$ =           |
| 2) $(4^3)^3$ =            | 12) $(10^4)^4$ =          |
| 3) $5^5 \times 5^2$ =     | 13) $4^3 \times 4^2$ =    |
| 4) $5^4 \times 5^{-4}$ =  | 14) $(10^4)^3$ =          |
| 5) $10^4 \cdot 10^{-4}$ = | 15) $(4^5)^3$ =           |
| 6) $5^3 \times 5^{-1}$ =  | 16) $5^3 : 5^4$ =         |
| 7) $4^2 : 4^5$ =          | 17) $(5^3)^2$ =           |
| 8) $2^1 : 2^5$ =          | 18) $4^2 \times 4^{-2}$ = |
| 9) $(3^3)^4$ =            | 19) $5^3 \times 5^{-2}$ = |
| 10) $(2^4)^3$ =           | 20) $5^3 \times 5^{-3}$ = |

Exercice N°2 : Réduis les expressions suivantes.

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|--|--|
| 1) $(4^{-2} \times 4^{-1}) : (4^{-1} \times 4^{-1})$ = | 11) $[10^4 \times (10^4)^5] : (10^4)^3$ =              |
| 2) $[5^4 \times (5^3)^3] : (5^2)^2$ =                  | 12) $[5^3 \times (5^1)^5] : (5^2)^4$ =                 |
| 3) $[10^2 \times (10^3)^4] : (10^2)^3$ =               | 13) $(5^4 \times 5^2 \times 5^4) : (5^3 \times 5^5)$ = |
| 4) $10^3 : [(10^{-1})^2 \times 10^2]$ =                | 14) $3^{-2} : [(3^4)^3 \times 3^3]$ =                  |
| 5) $[4^3 \times (4^5)^2] : (4^2)^4$ =                  | 15) $(3^1 \times 3^4 \times 3^4) : (3^1 \times 3^5)$ = |
| 6) $(4^{-5} \times 4^{-2}) : (4^{-2} \times 4^{-3})$ = | 16) $(10^3 \times 10^4) : (10^4 \times 10^{-1})$ =     |
| 7) $[3^4 \times (3^1)^5] : (3^4)^3$ =                  | 17) $(4^4 \times 4^5 \times 4^3) : (4^3 \times 4^3)$ = |
| 8) $10^{-3} : [(10^2)^5 \times 10^3]$ =                | 18) $(2^2 \times 2^5 \times 2^2) : (2^4 \times 2^4)$ = |
| 9) $(3^2 \times 3^3) : (3^3 \times 3^{-1})$ =          | 19) $[2^2 \times (2^4)^2] : (2^1)^2$ =                 |
| 10) $(4^2 \times 4^2 \times 4^2) : (4^1 \times 4^1)$ = | 20) $[3^4 \times (3^2)^4] : (3^1)^4$ =                 |

Exercice N°3 : Calculer et donner le résultat sous forme de fraction irréductible

$$A = \left(\frac{1}{2}\right)^2 =$$

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

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

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

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

$$F = \frac{-2^3}{-3^3} =$$

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

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

$$I = \left(\frac{1}{5}\right)^2 =$$

$$J = \frac{1^2}{5^2} =$$

$$K = \frac{1}{5^2} =$$

$$L = \left(\frac{-1}{5}\right)^2 =$$

$$M = -\left(\frac{1}{5}\right)^2 =$$

$$N = \frac{(-1)^2}{(-5)^2} =$$

$$O = \frac{-1^2}{-5^2} =$$

Exercice N°4 : Calculer après avoir simplifié l'écriture.

$$A = \frac{2^3 \times 5^2 \times 7^3}{2 \times 5^{-2} \times 7^2} =$$

$$B = \frac{(-3)^2 \times 2 \times 5^{-2}}{2 \times 5^2} =$$

$$C = \frac{3^3 \times 2^2 \times 5^{-2}}{2^{-3} \times 3^2 \times 5} =$$

$$D = \frac{5^{-3} \times 2^2}{5^{-2} \times 2^2} =$$

$$E = \frac{2^0 \times 3^2 \times 2^3}{4^0 \times 4^3} =$$

$$F = \frac{2^2 \times 3^3 \times 5}{2^{-3} \times 3^3 \times 5^{-1}} =$$

$$G = \left(\frac{3^3 \times 7^8 \times 11^4}{3 \times 7^8 \times 11}\right)^2 =$$

$$H = \frac{-2 \times 3^2 \times 5^3}{2^{-1} \times (-3) \times 5^2} =$$