

EXERCICE 1 - Calculer :

| | | | |
|-----------|--------------|--------------------------------|---------|
| a. | $(-4)^3 =$ | $(-4) \times (-4) \times (-4)$ | $= -64$ |
| b. | $5^4 =$ | | $=$ |
| c. | $(-6)^3 =$ | | $=$ |
| d. | $2^6 =$ | | $=$ |
| e. | $(-10)^3 =$ | | $=$ |
| f. | $2^8 =$ | | $=$ |
| g. | $(-3)^4 =$ | | $=$ |
| h. | $(0,1)^3 =$ | | $=$ |
| i. | $(-5)^5 =$ | | $=$ |
| j. | $(-100)^5 =$ | | $=$ |

EXERCICE 2 - Calculer :

| | | | |
|-----------|------------------------------------|---------------------------------|------------------|
| a. | $4^{-3} =$ | $\frac{1}{4 \times 4 \times 4}$ | $= \frac{1}{64}$ |
| b. | $(-2)^{-5} =$ | | $=$ |
| c. | $3^{-4} =$ | | $=$ |
| d. | $(-10)^{-4} =$ | | $=$ |
| e. | $(-0,2)^5 =$ | | $=$ |
| f. | $\left(\frac{1}{4}\right)^3 =$ | | $=$ |
| g. | $\left(-\frac{2}{3}\right)^4 =$ | | $=$ |
| h. | $\left(-\frac{3}{4}\right)^2 =$ | | $=$ |
| i. | $\left(-\frac{1}{5}\right)^{-3} =$ | | $=$ |
| j. | $\left(-\frac{2}{5}\right)^{-4} =$ | | $=$ |

EXERCICE 3 - Donner le résultat des calculs suivants sous la forme « a^n » :

| | | | | | | | |
|-----------|-------------------------------------|-----------|-------------------------------------|-----------|--|-----------|---|
| a. | $5^2 \times 5^4 = 5^6$ | b. | $4^{-3} \times 4^8 =$ | c. | $(-6)^{-7} \times (-6)^2 =$ | d. | $(-3)^7 \times (-3)^{-4} =$ |
| e. | $5^{-3} \times 5^{-1} \times 5^8 =$ | f. | $7^9 \times 7^{-8} \times 7^{-3} =$ | g. | $(-8)^2 \times (-8)^{-5} \times (-8)^{-1} =$ | h. | $9^2 \times 9^{-1} \times 9^{-7} \times 9^{-4} =$ |
| i. | $\frac{5^7}{5^3} = 5^4$ | j. | $\frac{7^{-4}}{7^3} =$ | k. | $\frac{(-6)^{-6}}{(-6)^{-1}} =$ | l. | $\frac{(-5)^6}{(-5)^{-16}} =$ |
| m. | $\frac{(-1)^{-12}}{(-1)^{-8}} =$ | n. | $\frac{23^{-14}}{23^{-21}} =$ | o. | $\frac{(-3)^{-9}}{(-3)^6} =$ | p. | $\frac{2^{-3}}{2^3} =$ |
| q. | $(3^{-2})^7 = 3^{-14}$ | r. | $((-5)^{-7})^{-1} =$ | s. | $((-2)^4)^{-3} =$ | t. | $(12^7)^3 =$ |
| u. | $(8^{-8})^8 =$ | v. | $((-9)^{-7})^{-2} =$ | w. | $((-0,6)^{-11})^{-3} =$ | x. | $(7^{-8})^0 =$ |

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EXERCICE 1 - Calculer :

| | | | |
|----|--------------|--|------------------------|
| a. | $(-4)^3 =$ | $(-4) \times (-4) \times (-4)$ | $= -64$ |
| b. | $5^4 =$ | $5 \times 5 \times 5 \times 5$ | $= 625$ |
| c. | $(-6)^3 =$ | $(-6) \times (-6) \times (-6)$ | $= -216$ |
| d. | $2^6 =$ | $2 \times 2 \times 2 \times 2 \times 2 \times 2$ | $= 64$ |
| e. | $(-10)^3 =$ | $(-10) \times (-10) \times (-10)$ | $= -1\ 000$ |
| f. | $2^8 =$ | $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$ | $= 256$ |
| g. | $(-3)^4 =$ | $(-3) \times (-3) \times (-3) \times (-3)$ | $= 81$ |
| h. | $(0,1)^3 =$ | $0,1 \times 0,1 \times 0,1$ | $= 0,001$ |
| i. | $(-5)^5 =$ | $(-5) \times (-5) \times (-5) \times (-5) \times (-5)$ | $= -3\ 125$ |
| j. | $(-100)^5 =$ | $(-100) \times (-100) \times (-100) \times (-100) \times (-100)$ | $= -10\ 000\ 000\ 000$ |

EXERCICE 2 - Calculer :

| | | | |
|----|------------------------------------|---|-----------------------------------|
| a. | $4^{-3} =$ | $\frac{1}{4 \times 4 \times 4}$ | $= \frac{1}{64}$ |
| b. | $(-2)^{-5} =$ | $\frac{1}{(-2)^5} = \frac{1}{(-2) \times (-2) \times (-2) \times (-2) \times (-2)}$ | $= \frac{1}{-32} = -\frac{1}{32}$ |
| c. | $3^{-4} =$ | $\frac{1}{3^4} = \frac{1}{3 \times 3 \times 3 \times 3}$ | $= \frac{1}{81}$ |
| d. | $(-10)^{-4} =$ | $\frac{1}{(-10)^4} = \frac{1}{(-10) \times (-10) \times (-10) \times (-10)}$ | $= -\frac{1}{10\ 000}$ |
| e. | $(-0,2)^5 =$ | $(-0,2) \times (-0,2) \times (-0,2) \times (-0,2) \times (-0,2)$ | $= -0,000\ 32$ |
| f. | $\left(\frac{1}{4}\right)^3 =$ | $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4}$ | $= \frac{1}{64}$ |
| g. | $\left(-\frac{2}{3}\right)^4 =$ | $\left(-\frac{2}{3}\right) \times \left(-\frac{2}{3}\right) \times \left(-\frac{2}{3}\right) \times \left(-\frac{2}{3}\right)$ | $= \frac{16}{81}$ |
| h. | $\left(-\frac{3}{4}\right)^2 =$ | $\left(-\frac{3}{4}\right) \times \left(-\frac{3}{4}\right)$ | $= \frac{9}{16}$ |
| i. | $\left(-\frac{1}{5}\right)^{-3} =$ | $\frac{1}{\left(-\frac{1}{5}\right)^3} = \frac{1}{\left(-\frac{1}{5}\right) \times \left(-\frac{1}{5}\right) \times \left(-\frac{1}{5}\right)} = -\frac{1}{125}$ | $= -125$ |
| j. | $\left(-\frac{2}{5}\right)^{-4} =$ | $\frac{1}{\left(-\frac{2}{5}\right)^4} = \frac{1}{\left(-\frac{2}{5}\right) \times \left(-\frac{2}{5}\right) \times \left(-\frac{2}{5}\right) \times \left(-\frac{2}{5}\right)} = \frac{1}{\frac{16}{625}}$ | $= \frac{625}{16}$ |

EXERCICE 3 - Donner le résultat des calculs suivants sous la forme « aⁿ » :

| | | | |
|--|--|--|---|
| $5^2 \times 5^4 = 5^6$ | $4^{-3} \times 4^8 = 4^{-3+8} = 4^5$ | $(-6)^{-7} \times (-6)^2 = (-6)^{-7+2} = (-6)^{-5}$ | $(-3)^7 \times (-3)^{-4} = (-3)^{7-4} = (-3)^3$ |
| $5^{-3} \times 5^{-1} \times 5^8 = 5^{-3-1+8} = 5^4$ | $7^9 \times 7^{-8} \times 7^{-3} = 7^{9-8-3} = 7^{-2}$ | $(-8)^2 \times (-8)^{-5} \times (-8)^{-1} = (-8)^{-4}$ | $9^2 \times 9^{-1} \times 9^{-7} \times 9^{-4} = 9^{2-1-7-4} = 9^{-10}$ |

$$\frac{5^7}{5^3} = 5^4$$

$$\frac{7^{-4}}{7^3} = 7^{-4-3} = 7^{-7}$$

$$\begin{aligned} \frac{(-6)^{-6}}{(-6)^{-1}} &= (-6)^{-6-(-1)} \\ &= (-6)^{-6+1} = (-6)^{-5} \end{aligned}$$

$$\begin{aligned} \frac{(-5)^6}{(-5)^{-16}} &= (-5)^{6-(-16)} \\ &= (-5)^{6+16} = (-5)^{22} \end{aligned}$$

$$\begin{aligned} \frac{(-1)^{-12}}{(-1)^{-8}} &= (-1)^{-12-(-8)} \\ &= (-1)^{-4} \end{aligned}$$

$$\begin{aligned} \frac{23^{-14}}{23^{-21}} &= 23^{-14-(-21)} \\ &= 23^{-14+21} = 23^7 \end{aligned}$$

$$\frac{(-3)^{-9}}{(-3)^6} = (-3)^{-9-6} = (-3)^{-15}$$

$$\frac{2^{-3}}{2^3} = 2^{-3-3} = 2^{-6}$$

$$(3^{-2})^7 = 3^{-14}$$

$$\begin{aligned} \left((-5)^{-7}\right)^{-1} &= (-5)^{-7 \times (-1)} \\ &= (-5)^7 \end{aligned}$$

$$\left((-2)^4\right)^{-3} = (-2)^{4 \times (-3)} = (-2)^{-12}$$

$$(12^7)^3 = 12^{7 \times 3} = 12^{21}$$

$$\begin{aligned} (8^{-8})^8 &= 8^{-8 \times 8} \\ &= 8^{-64} \end{aligned}$$

$$\begin{aligned} \left((-9)^{-7}\right)^{-2} &= (-9)^{-7 \times (-2)} \\ &= (-9)^{14} \end{aligned}$$

$$\begin{aligned} \left((-0,6)^{-11}\right)^{-3} &= (-0,6)^{-11 \times (-3)} \\ &= (-0,6)^{33} \end{aligned}$$

$$(7^{-8})^0 = 1$$