

LA PROVIDENCE – MONTPELLIER

CORRIGE – M. QUET

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.	$\left(-\frac{2}{5}\right)^{-4} =$	$\frac{1}{\left(-\frac{2}{5}\right)^4} = \frac{1}{\left(-\frac{2}{5}\right) \times \left(-\frac{2}{5}\right) \times \left(-\frac{2}{5}\right) \times \left(-\frac{2}{5}\right)} = \frac{16}{625}$	$= \frac{625}{16}$

EXERCICE 3 - Donner le résultat des calculs suivants sous la forme « a<sup>n</sup> » :

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

PUISSANCES ENTIÈRES D'UN NOMBRE RELATIF

EXERCICE 2

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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