

# EXPOSANTS - WORKSHEET

FIND THE VALUE OF EACH EXPRESSION WITHOUT CALCULATOR:

1)  $5^3 = 125$

2)  $2^6 = 64$

3)  $10^2 = 100$

4)  $6^3 = 216$

5)  $3^3 = 27$

6)  $4^3 = 64$

7)  $7^2 = 49$

8)  $3^4 = 81$

9)  $2^{11} = 2048$

10)  $(-2)^4 = 16$

11)  $10^4 = 10000$

12)  $(-2)^3 = -8$

SIMPLIFIE CHAQUE PRODUIT:

13)  $10^{12} \cdot 10^{35} = 10^{47}$

14)  $a^7 \cdot a^{12} = a^{19}$

15)  $c^3 \cdot c^8 = c^{11}$

16)  $d^7 \cdot d^9 = d^{16}$

17)  $x^{2e} \cdot x^{8e} = x^{10e}$

18)  $w^{103} \cdot w^{1030} = w^{1133}$

19)  $a^6 \cdot a^5 = a^{11}$

20)  $10^a \cdot 10^b = 10^{a+b}$

21)  $g^{12} \cdot g^{19} \cdot g^{11} = g^{42}$

22)  $(2x^2)(4x^3y^2) = 8x^5y^2$

23)  $(-3a^2b)(6ab^4c) = -18a^3b^5c$

24)  $(7q^5)(12q^3r^5) = 84q^8r^5$

25)  $(11c^8)(-10c^4d) = -110c^{12}d$

26)  $(9x^{10}z^2)(-x^5y^3) = -9x^{15}y^3z^2$

27)  $(-8f^6g)(-7f^2g^5h) = 56f^8g^6h$

28)  $(1.3a^6b^{11}c^5)(0.5a^2bc^3) = 0.65a^8b^{12}c^8$

29)  $(-2x^2z)(-4y^2z)(-3xyz) = -24x^3y^3z^3$

30)  $(a^x b^y c^z)(a^r b^s c^t) = a^{x+r} b^{y+s} c^{z+t}$

**SIMPLIFIE CHAQUE EXPRESSION:**

31)  $(x^2)^3 = x^6$     32)  $(a^7)^5 = a^{35}$     33)  $(y^{13})^4 = y^{52}$     34)  $(w^{-21})^{-15} = w^{315}$

35)  $(5^2)^3 = 5^6$     36)  $(23^7)^8 = 23^{56}$     37)  $(-y^5)^4 = y^{20}$     38)  $(4y^3)^2 = 16y^6$

39)  $(8c^5)^2 = 64c^{10}$     40)  $(-3h^9)^3 = -27h^{27}$     41)  $(y^4d^6)^8 = y^{32}d^{48}$

41)  $(-c^5h^6)^4 = c^{20}h^{24}$     42)  $(-15h^9k^7)^3 = -3375h^{27}k^{21}$     43)  $(k^9)^5(k^3)^2 = k^{45}k^6 = k^{51}$

44)  $(3y^6)^2(x^5y^2z) = 9y^{12}x^5y^2z = 9x^5y^{14}z$     45)  $(4h^3)^2(-2g^3h)^3 = 16h^6 \cdot (-8g^9h^3) = -128g^9h^9$     46)  $(14a^4b^6)^2(a^6c^3)^7 = 196a^8b^{12}a^{42}c^{21} = 196a^{50}b^{12}c^{21}$

**EVALUE CHAQUE MONOME POUR X=5, Y=-1, ET Z=4 SANS CALCULATRICE**

47)  $y^4 = (-1)^4 = 1$     48)  $3x^3 = 3(5)^3 = 3 \times 125 = 375$     49)  $2y^2 = 2(-1)^2 = 2 \times 1 = 2$     50)  $z^2 = 4^2 = 16$

51)  $(yz)^2 = (-1 \times 4)^2 = 16$     52)  $(yx)^3 = (-1 \times 5)^3 = -125$     53)  $x^2z^2 = 5^2 \times 4^2 = 25 \times 16 = 400$     54)  $y^x = (-1)^5 = -1$

~~55)~~ Quelle est l'aire d'un carré dont le coté mesure  $3a^5$  ?

~~56)~~ Quelle est l'aire d'un rectangle de largeur  $6x^2$  et de longueur  $12x^3$  ?

SIMPLIFIE CHAQUE QUOTIENT PUIS EVALUE :

$$57) \frac{10^6}{10^2} = 10^4 \\ = 10000$$

$$58) \frac{4^{17}}{4^{14}} = 4^3 \\ = 64$$

$$59) \frac{9^{210}}{9^{207}} = 9^3 \\ = 729$$

$$60) \frac{2^{y+1}}{2^y} = 2^1 \\ = 2$$

$$61) \frac{8^{r+4}}{8^{r+1}} = 8^3 \\ = 512$$

SIMPLIFIE CHAQUE EXPRESSION:

$$62) \left(\frac{x}{y}\right)^6 = \frac{x^6}{y^6}$$

$$63) \left(\frac{5c}{d^2}\right)^2 = \frac{25c^2}{d^4}$$

$$64) \left(\frac{4d^3}{c^5}\right)^3 = \frac{64d^9}{c^{15}}$$

$$65) \left(\frac{3w}{g^6}\right)^4 = \frac{81w^4}{g^{24}}$$

$$66) \left(\frac{-4s^6}{t^3r^5}\right)^3 = \frac{-64s^{18}}{t^9r^{15}}$$

$$67) \left(\frac{-2d^{11}f^6}{c^{18}}\right)^2 = \frac{4d^{22}f^{12}}{c^{36}}$$

$$68) \left(\frac{2d^4}{4e}\right)^3 = \frac{8d^{12}}{64e^3} = \frac{d^{12}}{8e^3}$$

$$69) \frac{6r^3}{2r} = 3r^2$$

$$70) \frac{-40s^6}{20s^3} = -2s^3$$

$$71) \frac{21d^{18}e^5}{7d^{11}e^3} = 3d^7e^2$$

$$72) \frac{-16w^7r^2}{-4wr} = 4w^6r$$

$$73) \frac{a^5b^5c^5}{-a^2b^3c^4} = -a^3b^2c$$

$$74) \frac{4.2x^4y^{14}}{0.6x^9y^5} = 7x^{-5}y^9 \\ = \frac{7y^9}{x^5}$$

$$75) \left(\frac{-24t^6}{8t^3}\right)^5 = (-3t^3)^5 \\ = -243t^{15}$$

$$76) \left(\frac{d^{11}f^{16}}{d^6f^6}\right)^3 = (d^5f^{10})^3 \\ = d^{15}f^{30}$$

$$77) \left(\frac{7d^2}{14d^4}\right)^5 = \left(\frac{1}{2d^2}\right)^5 \\ = \frac{1}{32d^{10}}$$

EVALUE CHAQUE QUOTIENT POUR X=2, Y=-2, ET Z=10:

$$\begin{aligned} 78) \frac{x^3}{x} &= x^2 \\ &= 2^2 \\ &= 4 \end{aligned}$$

$$\begin{aligned} 79) \frac{y^4}{y} &= y^3 \\ &= (-2)^3 \\ &= -8 \end{aligned}$$

$$\begin{aligned} 80) \frac{x^3 y}{xy^3} &= \frac{x^2}{y^2} \\ &= \frac{2^2}{(-2)^2} = 1 \end{aligned}$$

$$\begin{aligned} 81) \frac{z^4 x^2 y}{zxy^2} &= \frac{z^3 x}{y} \\ &= \frac{10^3 \times 2}{-2} \\ &= -1000 \end{aligned}$$

$$\begin{aligned} 82) \frac{(yz)^2}{z} &= \frac{y^2 z^2}{z} \\ &= y^2 z \\ &= (-2)^2 \times 10 \\ &= 40 \end{aligned}$$

$$\begin{aligned} 83) \frac{y^3 (3zx)^2}{9x^3} &= \frac{y^3 \times 9z^2 x^2}{9x^3} \\ &= \frac{z^2 y^3}{x} \\ &= \frac{10^2 \times (-2)^3}{2} = \frac{100 \times (-8)}{2} \\ &= -400 \end{aligned}$$

$$\begin{aligned} 84) \frac{z^{x+1}}{z^x} &= z \\ &= 10 \end{aligned}$$

$$\begin{aligned} 85) \frac{z^{x+x}}{z^{y+3}} &= z^{2x-y-3} \\ &= 10^{4+2-3} \\ &= 10^3 \\ &= 1000 \end{aligned}$$

$$\begin{aligned} 86) \left( \frac{xz}{y} \right)^3 &= \\ &= \left( \frac{2 \times 10}{-2} \right)^3 \\ &= (-10)^3 \\ &= -1000 \end{aligned}$$