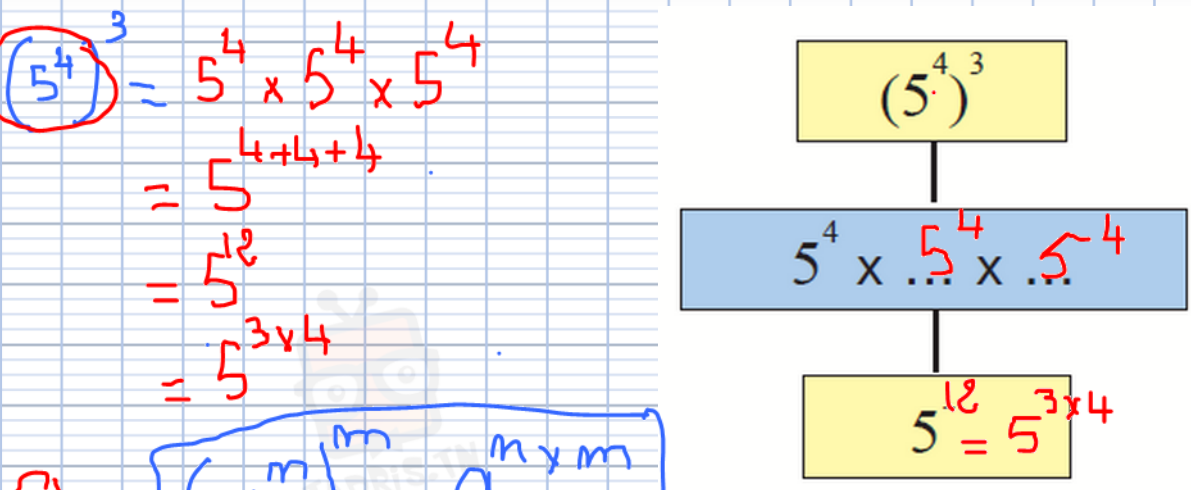
$(5^4)^3 = 5^4 \times 5^4 \times 5^4$

$= 5^{4+4+4}$

$= 5^{12}$

$= 5^{3\times 4}$

$(a^m)^m = a^{m\times m}$



$(4^2)^7 = 4^{2\times 7} = 4^{14}$

اكتب في صيغة قوة عدد صحيح طبيعي دليلها مخالف لواحد :

$3^5 \times (3^2)^4$ ؛ $(7^2)^3 \times 7^{10}$ ؛ $(3^4)^5$ ؛ $(2^6)^3$

$9^3 \times 27^2 \times 3^5$ ؛ $8^5 \times 2^3$ ؛ $\left[(7^4)^2 \times (7^3)^5\right]^2 \times 7^5$ ؛ $(5^4)^2 \times (5^5)^8$

$32^2 \times (2^3)^4 \times 4^3$ ؛ $16^4 \times 2^5$ ؛ $125^2 \times 5^7 \times 25^3$ ؛ $25^4 \times 5^5$

* $8^5 \times 2^3 = (2^3)^5 \times 2^3 = 2^{15} \times 2^3 = 2^{15+3} = 2^{18}$

* $9^3 \times 27^2 \times 3^5 = (3^2)^3 \times (3^3)^2 \times 3^5 = 3^6 \times 3^6 \times 3^5 = 3^{6+6+5} = 3^{17}$

* $(5^4)^2 \times (5^5)^8 = 5^8 \times 5^{40} = 5^{8+40} = 5^{48}$

* $\left[(7^4)^2 \times (7^3)^5\right]^2 \times 7^5 = \left[7^8 \times 7^{15}\right]^2 \times 7^5 = \left[7^{23}\right]^2 \times 7^5 = 7^{46} \times 7^5 = 7^{46+5} = 7^{51}$

* $(2^6)^3 = 2^{6\times 3} = 2^{18}$

* $(3^4)^5 = 3^{4\times 5} = 3^{20}$

* $(7^2)^3 \times 7^{10} = 7^6 \times 7^{10} = 7^{6+10} = 7^{16}$

* $3^5 \times (3^2)^4 = 3^5 \times 3^8 = 3^{5+8} = 3^{13}$

* $25^4 \times 5^5 = (5^2)^4 \times 5^5 = 5^8 \times 5^5 = 5^{8+5} = 5^{13}$

$32^2 \times (2^3)^4 \times 4^3$; $16^4 \times 2^5$; $125^2 \times 5^7 \times 25^3$

$* 125^2 \times 5^7 \times 25^3$

$= (5^3)^2 \times 5^7 \times (5^2)^3$

$= 5^6 \times 5^7 \times 5^6$

$= 5^{6+7+6} = 5^{19}$

$* 16^4 \times 2^5$

$= (2^4)^4 \times 2^5$

$= 2^{16} \times 2^5$

$= 2^{16+5}$

$= 2^{21}$

$* 32^2 \times (2^3)^4 \times 4^3$

$= (2^5)^2 \times 2^{12} \times (2^2)^3$

$= 2^{10} \times 2^{12} \times 2^6$

$= 2^{10+12+6} = 2^{28}$

$32 = 2 \times 2 \times 2 \times 2 \times 2$

$= 2^5$

اكتب في صيغة قوة عدد صحيح طبيعي دليلها مخالف لواحد :

2^2+2^5 ؛ $2^7+2^7+2^7+2^7$ ؛ $3^{10}+3^{10}+3^{10}$ ؛ $5^4+5^4+5^4+5^4+5^4$

$20\times5^4-4\times5^4$ ؛ $7\times3^{14}-4\times3^{14}$ ؛ $27\times5^{17}-2\times5^{17}$ ؛ $27\times10^{17}+73\times10^{17}$

* $2^2+2^5 = 4+32$
$= 36$
$= 6\times6$
$= 6^2$

* $2^7+2^7+2^7+2^7$
$= 4\times2^7$
$= 2^2\times2^7$
$= 2^{2+7}$
$= 2^9$

* $27\times10^{17}+73\times10^{17}$
$= 10^{17}\times(27+73)$
$= 10^{17}\times100$
$= 10^{17}\times10^2$
$= 10^{17+2}$
$= 10^{19}$

* $3^{10}+3^{10}+3^{10}$
$= 3^1\times3^{10}$
$= 3^{1+10} = 3^{11}$

* $5^4+5^4+5^4+5^4+5^4$
$= 5\times5^4$
$= 5^1\times5^4$
$= 5^{1+4} = 5^5$

* $27\times5^{17}-2\times5^{17}$
$= 5^{17}\times(27-2)$
$= 5^{17}\times25$
$= 5^{17}\times5^2$
$= 5^{17+2}$
$= 5^{19}$

* $20\times5^4-4\times5^4$
$= 5^4\times(20-4)$
$= 5^4\times16$
$= 5^4\times2^4$
$= (5\times2)^4 = 10^4$

* $7\times3^{14}-4\times3^{14}$
$= 3^{14}\times(7-4)$
$= 3^{14}\times3^1$
$= 3^{14+1} = 3^{15}$

تمرين

اكتب في صيغة قوة للعدد 10 :

$10^6 \times 10^5$ ؛ $25 \times 2^4 \times 5^2$ ؛ $\left(10^2\right)^3 \times 10^4$ ؛ $5^3 \times \left(2^4\right)^2 \times 5^5$

125×2^3 ؛ 8×5^3 ؛ 16×5^4 ؛ $2^4 \times 25^3 \times 4$

تمرين

1) انقل الجدول التالي ثم أكمله :

العدد	الكتابة القانونية للعدد
	$5\times10^4+4\times10^3+8\times10^2+7\times10+9$
7891	
	$6\times10^5+4\times10^2+7\times10$
52010	
	$8\times10^6+4\times10^4+7\times10^2+5$
890213	

تمرين عدد 1

احسب العبارات التالية :

$A = 5 + 5^2 + 5^3$ ؛ $B = 2 \times 7^2 + 3 \times 7 - 1$ ؛ $C = 2 \times 5^2 + 2^2 \times 5 + (2 \times 5)^2$

$D = 3 \times 7^2 \times 0 \times 11^3$ ؛ $E = 3 \times 5^2 \times 1^{75} \times 10^3$ ؛ $F = (5 - 2)^3$

$G = 5^3 - 2^3$ ؛ $H = 81^0 - 1^{81}$ ؛ $I = 65^0 + 1^{65}$

$J = (2^2 - 3)^{2013} + ((3^0 + 2^3) - 3^2)^{2014}$ ؛ $K = 2^3 + 3 \times 2^2 + (3^2 - 2^2)$