

القوى في مجموعة الأعداد الصحيحة الطبيعية

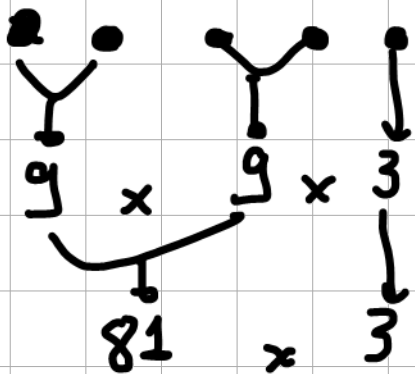
$$5 + 5 + 5 + 5 = 5 \times 4 = 20$$

$$5 \times 5 \times 5 \times 5 = 5^4 = 625$$

$$= \frac{5 \times 5 \times 5 \times 5}{25 \times 25}$$

$$\begin{array}{r} 1 \\ 2 \\ 25 \\ \times 25 \\ \hline 125 \\ + 500 \\ \hline 625 \end{array}$$

$$3 \times 3 \times 3 \times 3 \times 3 = 3^5 = 243$$



$$\begin{array}{r} \times 81 \\ 3 \\ \hline 243 \end{array}$$

$$4 \times 4 \times 4 = 4^3 = 64$$

$$\begin{array}{r} \times 16 \\ 4 \\ \hline 64 \end{array}$$

$7 \times 7 \times 7 \times 7 = 7^4$ هب قوة العدد 7 دليلها 4

$8 \times 8 \times 8 = 8^3$ هب قوة العدد 8 دليلها 3

$$2^2 = 2 \times 2 = 4$$

$$6^2 = 6 \times 6 = 36$$

$$3^2 = 3 \times 3 = 9$$

$$7^2 = 7 \times 7 = 49$$

$$4^2 = 4 \times 4 = 16$$

$$8^2 = 8 \times 8 = 64$$

$$5^2 = 5 \times 5 = 25$$

$$9^2 = 9 \times 9 = 81$$

قوة 2 = مربع

$$2^3 = 2 \times 2 \times 2 = 8$$

$$3^3 = 3 \times 3 \times 3 = 27$$

$$4^3 = 4 \times 4 \times 4 = 64$$

$$5^3 = 5 \times 5 \times 5 = 125$$

قوة 3 = مكعب

خاصيات القوى في مجموعة الأعداد الطبيعية

$$a^0 = 1$$

$$17^0 = 1$$

$$30^0 = 1$$

$$a^1 = a$$

$$13^1 = 13$$

$$(27+13)^1 = 27+13 = 40$$

$$a^n \times a^m = a^{n+m}$$

$$5^3 \times 5^4 = 5^{3+4} = 5^7$$

$$12^5 \times 12^8 = 12^{5+8} = 12^{13}$$

$$7^6 \times 7^9 = 7^{6+9} = 7^{15}$$

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

$$(7^2)^4 = 7^{2 \times 4} = 7^8$$

$$(12^3)^5 = 12^{3 \times 5} = 12^{15}$$

$$a^n \times b^n = (a \times b)^n$$

$$5^3 \times 6^3 = (5 \times 6)^3 = 30^3$$

$$12^4 \times 4^4 = (12 \times 4)^4 = 48^4$$

$$\begin{array}{r} \times 12 \\ 4 \\ \hline 48 \end{array}$$

العمليات التي نحتويها في قوانين الأعداد الطبيعية

$$2^2 = 4$$

$$6^2 = 36$$

$$2^3 = 8$$

$$3^2 = 9$$

$$7^2 = 49$$

$$3^3 = 27$$

$$4^2 = 16$$

$$8^2 = 64$$

$$4^3 = 64$$

$$5^2 = 25$$

$$9^2 = 81$$

$$5^3 = 125$$

$$2^4 \times 4 = 2^4 \times 2^2 = 2^{4+2} = 2^6$$

$$3^5 \times 27 = 3^5 \times 3^3 = 3^{5+3} = 3^8$$

$$49 \times 7^6 = 7^2 \times 7^6 = 7^{2+6} = 7^8$$

$$25^3 \times 5^8 = (5^2)^3 \times 5^8 = 5^{2 \times 3} \times 5^8 = 5^6 \times 5^8 = 5^{6+8} = 5^{14}$$

$$49^3 \times 7^5 = (7^2)^3 \times 7^5 = 7^{2 \times 3} \times 7^5 \\ = 7^6 \times 7^5 = 7^{6+5} = 7^{11}$$

$$(3 \times 2^2) + 5 + 6^2 = (3 \times 4) + 5 + 36 \\ = 12 + 5 + 36 \\ = 17 + 36 \\ = 53$$

$$(5 + 7^2) + 3^3 - 12 = (5 + 49) + 27 - 12 \\ = 54 + 27 - 12 \\ = 81 - 12 = 69$$

$$\begin{array}{r} 81 \\ - 12 \\ \hline 69 \end{array}$$

$$a^0 = 1$$

$$a^1 = a$$

$$5^0 = 1$$

$$12^1 = 12$$

$$a^n \times a^m = a^{n+m}$$

$$5^3 \times 5^8 = 5^{3+8} = 5^{11}$$

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

$$(12^3)^2 = 12^{3 \times 2} = 12^6$$

$$a^n \times b^n = (a \times b)^n$$

$$8^3 \times 2^3 = (8 \times 2)^3 = 16^3$$