

Gr 8 Wiskunde | Mathematics

Eksponente | Exponents (3)

Eksponentwette | Laws of Exponents

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

2. $a^m \div a^n = a^{m-n}$

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

4. $a^0 = 1$

5. $a^{-1} = \frac{1}{a}$

6. $\sqrt[n]{a^m} = a^{\frac{m}{n}}$

• Klein reënboog somme X

• Small rainbow calculations X

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

Hoekom?

Why?

$$(2^3)^2 = (2^3)(2^3) = (2 \times 2 \times 2)(2 \times 2 \times 2) = 2^6$$

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

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

b) $(2^4 a^2)^3 = 2^{4 \times 3} a^{2 \times 3} = 2^{12} a^6$

c) $2(x^2 y^2)^3 = 2 x^{2 \times 3} y^{2 \times 3} = 2 x^6 y^6$

d) $(xyz)^2 = x^{1 \times 2} y^{1 \times 2} z^{1 \times 2} = x^2 y^2 z^2$

Wag by "voordeur"

Waiting at "front door"

$$2(x^2 y^2)^3$$

maak binne "skoon" voor jy "mense" inlaat

"clean" inside first before inviting "anyone" in

8.2.3

②

e) $(2a^2)^3$

PASOP VIR DIE / CAREFUL

↳ Onthou dat die 2 ook 'n eksponent het 2'

↳ Remember, the 2 also has an exponent 2'

$$\therefore (2^1 a^2)^3 = 2^{1 \times 3} a^{2 \times 3}$$

$$= 2^3 a^6$$

Oef / Ex 3

1) $(2^5)^2$

4) $10(xyz^2)^2$

2) $(2^2 x^3)^2$

5) $(5x^7)^3$

3) $2(a^2 b^2)^5$

6) $3(3m^4)^3$

Memo:

1) 2^{10} 2) $2^4 x^6$ 3) $2^6 a^{10} b^{10}$ 4) $10^2 x^2 y^2 z^4$

5) $5^3 x^{21}$ 6) $3(3^3 m^{12}) = 3^4 m^{12}$