8.2.2
①

Gr 8 Wiskunde / Mathematics

Eksponente / Exponents (2)

Eksponentwette / Laws of Exponents

1. $a^m \times a^n = a^{m+n}$
2. $a^m \div a^n = a^{m-n}$ of $\frac{a^m}{a^n} = a^{m-n}$
3. $(a^m)^n = a^{m \times n}$
4. $a^0 = 1$
5. $a^{-1} = \frac{1}{a}$
6. $\sqrt[n]{a^m} = a^{\frac{m}{n}}$

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

- Grondtalle dieselfde ! Bases the same !
- "Die ÷ verander in 'n — as jy hom in die lug gooi (kolletjies bly agter)"
- "The ÷ changes to a — when tossed in the air (dots fall off)"

a) $3^7 \div 3^2$
$= 3^{7-2}$
$= 3^5$

b) $\frac{5^5}{5^2}$
$= 5^{5-2}$
$= 5^3$

- My "reël" is om alles altyd eers boontoe te skuif. Jy kan later terug skuif.
- My "rule" is to "take" everything to the top first, then move back later.

c) $\frac{2^5 \times 3^4}{3^2 \times 2^2}$
$= 2^{5-2} \times 3^{4-2}$
$= 2^3 \times 3^2$

8.2.2
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d) $\frac{3^4 \times 5^5 \times 3^2}{5^2 \times 3^3 \times 5}$

$= 3^{4+2-3} \times 5^{5-2-1}$

$= 3^3 \times 5^2$

$5 = 5^1$ invisible 1

$\frac{3^4 \times 5^5 \times 3^2}{5^2 \times 3^3 \times 5^1}$ ↑ teken verander sign changes

Def | Ex 2

1) $5^{10} \div 5^5$

2) $a^6 \div a^2$

3) $\frac{2^4}{2^2} \times \frac{3^5}{3^1}$

4) $\frac{3^2 \times 2^2 \times 3^4 \times 2^3}{3^5 \times 2^2}$

5) $\frac{x^2 \times y^3 \times z^4}{z^2 \times y \times x}$

Memo: 1) 5^5 2) a^4 3) $2^2 \times 3^4$ 4) $3^1 \times 2^3$

5) $x \times y^2 \times z^2$ or xy^2z^2