8.2.4 ①

Gr 8 Wiskunde / Mathematics

Eksponente / Exponents (4)

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. $a^0 = 1$ Enige iets $^0 = 1$
                            Anything $^0 = 1$
* 5. $a^{-m} = \dfrac{1}{a^m}$
6. $\sqrt[n]{a^m} = a^{\frac{m}{n}}$

● 4.   getal $^0 = 1$ number $^0 = 1$
          veranderlike $^0 = 1$ variable $^0 = 1$
          (hakie)$^0 = 1$ (brackets)$^0 = 1$

a) 2^0
   $= 1$

b) $2a^0$
   $= 2(1)$
   $= 2$

c) $(2a)^0$
   $= 1$

d) $2a^0 b^2$
   $= 2(1)b^2$
   $= 2b^2$

e) $(2a^0)^2$
   $= 2^2 a^0$
   $= 4(1)$
   $= 4$

5. Negatiewe Eksponente
Negative Exponents

Die storie ☺	The story ☺
Antwoorde mag slegs positiewe eksponente bevat. Daar is 2 "verdiepings" as jy met eksponente werk met 2 verskillende partytjies. Op die "grondvloer" is daar een en dan as jy	Answers should be left with ONLY positive exponents. There are 2 options. The ground floor party or if you are not happy there, you can go to the "basement" and hopefully you will be

nie daarvan hou nie kan jy | happy there ☺
na die "basement" gaan en
die ander partytjie probeer

a) a^{-1} not happy → move downstairs
                          to the "basement"
$= \dfrac{1}{a^1}$

skuif grondtal met eksponent
move base with exponent

b) $2\boxed{x^{-1}}$
$= \dfrac{2}{x^1}$

c) $a^2\boxed{b^{-3}}$
$= \dfrac{a^2}{b^3}$

d) $\boxed{(2xy)^{-1}}$
$= \dfrac{1}{(2xy)^1}$
$= \dfrac{1}{2xy}$

e) $\dfrac{3\boxed{a^{-2}}}{4\boxed{b^{-3}}}$
$= \dfrac{3b^3}{4a^2}$

☾ As die grondtal se eksponent nie "happy" is
nie, skuif na ander vlak.
If the base's exponent isn't "happy", move
to the other level.

f) $\dfrac{3a^2b^1c^{-4}}{9a^1b^3c^1} \times \dfrac{2a^{-2}b^3c^{-1}}{4(ab)^{-2}}$ ①

$= \dfrac{3a^2b^1c^{-4}}{9a^1b^3c^1} \times \dfrac{2a^{-2}b^3c^{-1}}{4a^{-2}b^{-2}}$

$= \dfrac{1 a^{2-1-2+2} \ b^{1-3+3+2} \ c^{-4-1-1}}{3} \times \dfrac{1}{2}$

$= \dfrac{1a^1b^3\boxed{c^{-6}}}{6}$

$= \dfrac{1ab^3}{6c^6}$