8.1.1 ①

Wiskunde Gr 8 Mathematics

Telgetalle / Whole Numbers $\mathbb{N}_0$

- Getalle (basiese/maklike) wat ons gebruik om iets te tel. Bv 6 besems, 2 honde, 0 karre.
- Numbers (basic/easy) that we use to count things. 6 brooms, 2 dogs, 0 cars

$$\mathbb{N}_0 = \{0; 1; 2; 3; 4; 5 \ldots\}$$

Wat gebeur as nul (0) weg gevat word?
What happens when zero (0) gets taken away?

= Natuurlike getalle = Natural numbers

$$\mathbb{N} = \{1; 2; 3; 4; 5; 6 \ldots\}$$

Mens wil van nature by 1 begin tel = Natuurlike

People, by nature, want to start counting at 1 = Natural

1. 4 Beginsels / Bewerkings / 4 Properties / Calculations

1. + en X / + and X

- 2 telgetalle + of X = telgetal antwoord.
  2 whole numbers + or X = whole nr answer.

2. Inverse ← teenoorgestelde/omgekeerde / opposite

- 2 telgetalle − of ÷ = NIE altyd telgetal
  2 whole numbers − or ÷ = NOT always whole number

3. Volgorde van bewerkings / Order of Operation

( ) ; $\sqrt{\ }^2$; X ÷ ; + −

① Binne die huis: Inside the house

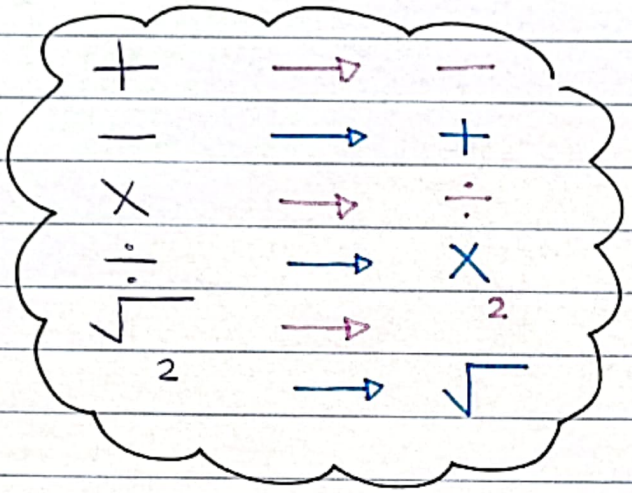
② ''

③ links→regs / left→right

④ left→right / links→regs

Volgorde van bewerking moet ALTYD jou eerste Wiskunde "file" wees wat jy "kry". (in jou brein)
= Start here ↓
Order of operation should ALWAYS be your first "file" that you "take out" (in your brain)

4. Inverse bewerkings / Inverse operations



2. Eienskappe / Properties

1. Kommutatiewe eienskap / Commutative property

"Commute" = move around ↩↪

- Volgorde by + en × maak nie saak nie (kan omruil)

$3+5 = 8 \rightarrow 5+3 = 8$

- Order of + and × doesn't matter (can swop around)

$2\times 6 = 12 \rightarrow 6\times 2 = 12$

"same-same"

2. Assosiatiewe eienskap / Associative property

assosieer = groepeer ( ) associate = group

- Meer as 2 getalle + of ×, mag groepeer.

$1+3+5 = (\overset{4}{1+3})+5 = 9$ / $1+(\overset{8}{3+5}) = 9$

- More than 2 numbers + or ×, group some.

$2\times 3\times 4 = (2\times 3)\times 4 = 6\times 4 = 24$ / $2\times(3\times 4) = 2\times 12 = 24$

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3. Distributiewe eienskap / Distributive property

↷ " distribute = hand out / share " ↷

- Som/verskil binne hakies ✕ getal voor = getal voor ✕ elke getal apart

$2 \times (3+5) = 2 \times (8) = 16$ of/or $2\times3 + 2\times5 = 6+10 = 16$

- Sum/difference inside brackets ✕ number in front = number in front ✕ seperate numbers

3. Identiteitselemente / Identity elements

1. Nul (0) Zero

- Nul is die identiteitselement vir optelling. As jy nul by enige getal by tel of aftrek, is die antwoord altyd die getal.

$4 + 0 = 4$ $\quad$ $7 - 0 = 7$

- Zero is the identity element of addition. When you add/subtract zero from any number, the answer will always be the number.

2. Een (1) One

- Een is die identiteitselement vir maal. As jy enige getal met 1 vermenigvuldig of deel, is die antwoord altyd die getal.

$5 \times 1 = 5$ $\quad$ $10 \div 1 = 10$

- One is the identity element of multiplication. When you multiply/divide any number by 1, the answer will always be the number.

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4. X met with 0 nul zero

- ENIGE getal X 0 = 0
- ANY number X 0 = 0

$4 \times 3 = 12$
$3 \times 3 = 9$ (-3)
$2 \times 3 = 6$ (-3)
$1 \times 3 = 3$ (-3)
$0 \times 3 = 0$ (-3)

NB volgorde van bew. / order of operation.

$4 \times 0 + 2 = ?$
$= 0 + 2$
$= 2$

$2 + 3 \times 0 = ?$
$= 2 + 0$
$= 2$

5. ÷ met 'n with a 0 nul zero

- $0 \div$ enige getal $= 0$
  $0 \div$ any number $= 0$

❀ Jy het niks om met mense te deel nie = bly niks

❀ You don't have anything to divide/share with people = stays nothing

- Enige getal $\div 0$ = ongedefinieerd
  Any number $\div 0$ = undefined

$$\frac{\square}{0}$$

- Soos om op 'n bal te probeer balanseer ↳ jy gaan 'n foutjie (math error) maak een of ander tyd en afval = ongedef.
- It is like trying to balance on a ball, at some point you are going to make an error (math error) and fall = undef