8.1.5
①

Gr 8 Wiskunde / Mathematics

Breuke / Fractions (1)

NB **Stappe**

1. Skakel om.
   - Gemeng → Onegte
   - Heelgetal → Breuk
2. ÷ → X (Deel)
   - "Flip-en Maal"
3. X ⇉ (Maal)
   - Maal bo + bo
   - Maal onder + onder
   - "Uitkanselleer"
4. + en − (KGV)
   - Noemers = (onder)

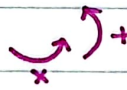
LAASTE: Vereenvoudig!

NB **Steps**

1. Convert
   - Mixed → Improper
   - Integer → Fraction
2. ÷ → X (Divide)
   - "Flip-en Multiply"
3. X ⇉ (Multiply)
   - Multiply top + top
   - Multiply bottom + bottom
   - "Cancel out"
4. + and − (LCM)
   - Denominators = (bottom)

LAST: Simplify!

1. Skakel om / Convert



$$4\frac{2}{3} = 4\frac{2}{3}\overset{\times}{\underset{+}{\curvearrowright}} = \frac{4\times3+2}{3} = \frac{14}{3}$$

$$1\frac{7}{9} = 1\frac{7}{9}\overset{\times}{\underset{+}{\curvearrowright}} = \frac{1\times9+7}{9} = \frac{16}{9}$$

$$4 = \frac{4}{1}$$

(getalle MOET dieselfde waarde hê)
Heelgetalle T, want $4 \div 1 = 4$

$$-3 = -\frac{3}{1}$$

Integers T, because $4 \div 1 = 4$
(numbers MUST have same value)

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2. + en − Breuke / + and − Fractions

KGV / LCM

↳ Veelvoud / ↳ Multiple

- Stap 1 is ALTYD omskakel / Step 1 is ALWAYS – Convert
  Kry onder dieselfde / Get bottom equal

a) $\frac{2}{5} + \frac{1}{5}$

$= \frac{2+1}{5}$

$= \frac{3}{5}$

Vereenvoudig? / Simplify?

b) $\frac{2}{3} + \frac{1}{4}$

$= \frac{}{12} + \frac{}{12}$

$\frac{2\times4}{3\times4} + \frac{1\times3}{4\times3}$

$= \frac{8}{12} + \frac{3}{12}$

$= \frac{8+3}{12}$

$= \frac{11}{12}$

KGV / LCM: 3 6 9 (12) 15 18 / 4 8 (12) 16 20

Kyk nou hoe kry jy 12? / Check how to get to 12?

"Wat jy onder doen, doen jy bo" / "What you do at the bottom, you do at the top"

Vereenvoudig? / Simplify?

c) $2\frac{2}{5} - 1\frac{3}{4}$ 1. Skakel om / Convert

$= \frac{12\times4}{5\times4} - \frac{7\times5}{4\times5}$

$= \frac{48}{20} - \frac{35}{20}$

$= \frac{48-35}{20}$

$= \frac{13}{20}$

KGV / LCM: 4 8 12 16 (20) 24 28 / 5 10 15 (20) 25 30

Vereenvoudig? / Simplify?

d) $\frac{3}{1} + 2\frac{1}{6} - 1\frac{6}{7}$ 1. Skakel om / Convert

$= \frac{3\times42}{1\times42} + \frac{13\times7}{6\times7} - \frac{13\times6}{7\times6}$

$= \frac{126}{42} + \frac{91}{42} - \frac{78}{42}$

$= \frac{126+91-78}{42}$

$= \frac{139}{42}$ / $3\frac{13}{42}$

KGV / LCM: 6 12 18 24 30 36 (42) 48 / 7 14 21 28 35 (42) 49 / 1 2 3 4 .... 40 41 (42)

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3. X Breuke / X Fraction

• Stap 1 = omskakel • Step 1 = convert

a) $\frac{1}{2} \xrightarrow{\times} \frac{2}{3}$

$= \frac{1 \times 2}{2 \times 3}$

$= \frac{2 \div 2}{6 \div 2}$ vereenvoudig / simplify

$= \frac{1}{3}$

OF $\frac{\cancel{1}}{\cancel{2}} \times \frac{\cancel{2}}{3} = \frac{1}{3}$

Kanselleer 1 bo, met 1 onder
Cancel 1 top, with 1 bottom

b) $3\frac{2}{5} \times 3\frac{1}{3}$ 1. Skakel om / Convert

$= \frac{3 \times 5 + 2}{5} \times \frac{3 \times 3 + 1}{3}$

$= \frac{17}{5} \xrightarrow{\times} \frac{10}{3}$

$= \frac{17 \times 10}{5 \times 3}$

$= \frac{170 \div 5}{15 \div 5}$ vereenvoudig / simplify

$= \frac{34}{3}$

OF $\frac{17}{\cancel{5}} \times \frac{\cancel{10}2}{3} = \frac{17 \times 2}{3} = \frac{34}{3}$

c) $1\frac{1}{4} + 2\frac{1}{2} \times \frac{4}{5}$ 1. Skakel om / Convert

$= \frac{1 \times 4 + 1}{4} + \frac{2 \times 2 + 1}{2} \times \frac{4}{5}$

$= \frac{5}{4} + \frac{5}{2} \times \frac{4}{5}$

! VOLGORDE VAN BEWERKING !!
! ORDER OF OPERATION !

$= \frac{5}{4} + \frac{5 \times 4}{2 \times 5}$

$= \frac{5}{4} + \frac{20}{10}$

$= \frac{5}{4} + \frac{2 \times 4}{1 \times 4}$

$= \frac{5}{4} + \frac{8}{4}$

$= \frac{5 + 8}{4}$

$= \frac{13}{4}$

OF $\frac{5}{4} + \frac{\cancel{5}}{\cancel{21}} \times \frac{\cancel{42}}{\cancel{5}} = \frac{5}{4} + \frac{2}{1}$

KGV / LCM: ④ 8 12 16
1 2 3 ④