

SHARP

Werkkaart 13 Memorandum: Gewone breuke

Graad 8 Wiskunde

1. a) $2\frac{19}{25} = \frac{69}{25}$ b) $1\frac{3}{7} = \frac{10}{7}$ c) $2\frac{6}{9} = \frac{24}{9}$
d) $3\frac{1}{3} = \frac{10}{3}$ e) $1\frac{2}{5} = \frac{7}{5}$ f) $8\frac{3}{4} = \frac{35}{4}$
g) $9\frac{11}{12} = \frac{119}{12}$ h) $7\frac{3}{8} = \frac{59}{8}$ i) $4\frac{1}{6} = \frac{25}{6}$
j) $3\frac{2}{6} = \frac{20}{6}$ k) $4\frac{10}{12} = \frac{58}{12}$ l) $7\frac{3}{10} = \frac{73}{10}$
2. a) $\frac{18}{15} = 1\frac{1}{5}$ b) $\frac{89}{7} = 12\frac{5}{7}$ c) $\frac{27}{11} = 2\frac{5}{11}$
d) $\frac{53}{5} = 10\frac{3}{5}$ e) $\frac{44}{3} = 14\frac{2}{3}$ f) $\frac{70}{30} = 2\frac{1}{3}$
g) $\frac{61}{6} = 10\frac{1}{6}$ h) $\frac{93}{7} = 13\frac{2}{7}$ i) $\frac{60}{8} = 7\frac{1}{2}$
j) $\frac{68}{3} = 22\frac{2}{3}$ k) $\frac{328}{25} = 13\frac{3}{25}$ l) $\frac{9933}{1000} = 9\frac{933}{1000}$
3. a) $\frac{77}{22} = \frac{7}{2}$ or $3\frac{1}{2}$ b) $\frac{8}{4} = 2$ c) $\frac{16}{24} = \frac{2}{3}$
d) $\frac{81}{90} = \frac{9}{10}$ e) $\frac{36}{42} = \frac{6}{7}$ f) $\frac{45}{60} = \frac{3}{4}$
g) $\frac{11}{121} = \frac{1}{11}$ h) $\frac{30}{90} = \frac{1}{3}$ i) $\frac{25}{100} = \frac{1}{4}$
j) $\frac{21}{42} = \frac{1}{2}$ k) $\frac{100}{250} = \frac{2}{5}$ l) $\frac{93}{96} = \frac{31}{32}$

4.

Gewone breuk in eenvoudigste vorm	Persentasie	Desimaal
$\frac{5}{3}$	166,67%	1,66 $\bar{6}$
$\frac{9}{10}$	90%	0,9
$\frac{1}{100}$	1%	0,01
$\frac{11}{12}$	91,67%	0,9166 $\bar{6}$
$\frac{3}{4}$	75%	0,75
$2\frac{1}{2}$	250%	2.5

$\frac{11}{40}$	27,5%	0,275
$\frac{21}{100}$	21%	0,21
$\frac{1}{8}$	12,5%	0,125

5. a) $\frac{9}{10}$ van 8

$$= \frac{9}{10} \times \frac{8}{1}$$

$$= \frac{9}{5} \times \frac{4}{1}$$

$$= \frac{36}{5} \text{ of } 7\frac{1}{5}$$

b) $\frac{6}{8}$ van 30

$$= \frac{6}{8} \times \frac{30}{1}$$

$$= \frac{3}{2} \times \frac{15}{1}$$

$$= \frac{45}{2} \text{ of } 22\frac{1}{2}$$

c) $\frac{9}{8}$ van 64

$$= \frac{9}{8} \times \frac{64}{1}$$

$$= \frac{9}{1} \times \frac{8}{1}$$

$$= 72$$

d) $\frac{1}{4}$ van 42

$$= \frac{1}{4} \times \frac{42}{1}$$

$$= \frac{1}{2} \times \frac{21}{1}$$

$$= \frac{21}{2} \text{ of } 10\frac{1}{2}$$

e) $\frac{5}{9}$ van 19

$$= \frac{5}{9} \times \frac{19}{1}$$

$$= \frac{95}{9} \text{ of } 10\frac{5}{9}$$

f) $\frac{1}{3}$ van $\frac{4}{5}$

$$= \frac{1}{3} \times \frac{4}{5}$$

$$= \frac{4}{15}$$

g) $\frac{2}{5}$ van $\frac{1}{5}$

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

$$= \frac{2}{25}$$

h) $\frac{4}{9}$ van $\frac{1}{3}$

$$= \frac{4}{9} \times \frac{1}{3}$$

$$= \frac{4}{27}$$

i) $\frac{3}{6}$ van 47

$$= \frac{3}{6} \times \frac{47}{1}$$

$$= \frac{141}{6} \text{ of } 23\frac{1}{2}$$

j) $\frac{2}{7}$ van $\frac{1}{6}$

$$= \frac{2}{7} \times \frac{1}{6}$$

$$= \frac{1}{7} \times \frac{1}{3}$$

$$= \frac{1}{21}$$

k) $\frac{3}{8}$ van $\frac{4}{9}$

$$= \frac{3}{8} \times \frac{4}{9}$$

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

$$= \frac{1}{6}$$

l) $2\frac{1}{3}$ van 93

$$= \frac{7}{3} \times \frac{93}{1}$$

$$= \frac{7}{1} \times \frac{31}{1}$$

$$= 217$$

6. a) $\frac{3}{6} + \frac{4}{5}$

$$= \frac{15}{30} + \frac{24}{30}$$

$$= \frac{39}{30}$$

$$= \frac{13}{10} \text{ or } 1\frac{3}{10}$$

b) $9\frac{2}{7} - 2\frac{1}{2}$

$$= 9\frac{4}{14} - 2\frac{7}{14}$$

$$= 8\frac{18}{14} - 2\frac{7}{14}$$

$$= 6\frac{11}{14}$$

c) $\frac{3}{7} \times \frac{1}{9}$

$$= \frac{1}{7} \times \frac{1}{3}$$

$$= \frac{1}{21}$$

$$\begin{aligned}
 \text{d)} \quad & 1\frac{9}{15} + 1\frac{2}{3} - 2\frac{3}{5} \\
 & = 1\frac{9}{15} + 1\frac{10}{15} - 2\frac{9}{15} \\
 & = 2\frac{19}{15} - 2\frac{9}{15} \\
 & = \frac{10}{15} \text{ or } \frac{2}{3}
 \end{aligned}$$

$$\begin{aligned}
 \text{e)} \quad & 2\frac{1}{4} \times 5\frac{2}{3} \\
 & = \frac{9}{4} \times \frac{17}{3} \\
 & = \frac{3}{4} \times \frac{17}{1}
 \end{aligned}$$

$$\begin{aligned}
 \text{f)} \quad & 2\frac{2}{9} - 1\frac{1}{6} \\
 & = 2\frac{4}{18} - 1\frac{3}{18} \\
 & = 1\frac{1}{18}
 \end{aligned}$$

$$\begin{aligned}
 \text{g)} \quad & \frac{2}{7} + \frac{5}{8} - \frac{1}{4} \\
 & = \frac{16}{56} + \frac{35}{56} - \frac{14}{56} \\
 & = \frac{37}{56}
 \end{aligned}$$

$$\begin{aligned}
 \text{h)} \quad & 1\frac{3}{8} \times 1\frac{8}{11} \\
 & = \frac{11}{8} \times \frac{19}{11} \\
 & = \frac{1}{8} \times \frac{19}{1} \\
 & = \frac{19}{8} \text{ of } 2\frac{3}{8}
 \end{aligned}$$

$$\begin{aligned}
 \text{i)} \quad & \frac{10}{9} + \frac{4}{3} - 1\frac{7}{18} \\
 & = \frac{20}{18} + \frac{24}{18} - 1\frac{7}{18} \\
 & = \frac{44}{18} - \frac{25}{18} \\
 & = \frac{19}{18} \text{ of } 1\frac{1}{18}
 \end{aligned}$$

$$\begin{aligned}
 \text{j)} \quad & 9\frac{3}{4} \times \frac{12}{13} \\
 & = \frac{39}{4} \times \frac{12}{13} \\
 & = \frac{3}{1} \times \frac{3}{1} \\
 & = 9
 \end{aligned}$$

$$\begin{aligned}
 \text{k)} \quad & \frac{6}{8} + 2\frac{1}{16} - 2\frac{5}{8} \\
 & = \frac{12}{16} + 2\frac{1}{16} - 2\frac{10}{16} \\
 & = 2\frac{13}{16} - 2\frac{10}{16} \\
 & = \frac{3}{16}
 \end{aligned}$$

$$\begin{aligned}
 \text{l)} \quad & 5\frac{4}{7} \times \frac{5}{3} \\
 & = \frac{39}{7} \times \frac{5}{3} \\
 & = \frac{13}{7} \times \frac{5}{1} \\
 & = \frac{65}{7} \text{ of } 9\frac{2}{7}
 \end{aligned}$$

7. Verdeel die volgende en skryf jou antwoord in eenvoudigste vorm:

$$\begin{aligned}
 \text{a)} \quad & 3 \div \frac{1}{2} \\
 & = \frac{3}{1} \div \frac{1}{2} \\
 & = \frac{3}{1} \times \frac{2}{1} \\
 & = 6
 \end{aligned}$$

$$\begin{aligned}
 \text{b)} \quad & 5 \div \frac{4}{7} \\
 & = \frac{5}{1} \div \frac{4}{7} \\
 & = \frac{5}{1} \times \frac{7}{4} \\
 & = \frac{35}{4} \text{ of } 8\frac{3}{4}
 \end{aligned}$$

$$\begin{aligned}
 \text{c)} \quad & 9 \div \frac{4}{6} \\
 & = \frac{9}{1} \div \frac{4}{6} \\
 & = \frac{9}{1} \times \frac{6}{4} \\
 & = \frac{54}{4} \text{ of } 13\frac{1}{2}
 \end{aligned}$$

$$\begin{aligned}
 \text{d)} \quad & 9 \div \frac{9}{10} \\
 & = \frac{9}{1} \div \frac{9}{10} \\
 & = \frac{9}{1} \times \frac{10}{9} \\
 & = \frac{1}{1} \times \frac{10}{1} \\
 & = 10
 \end{aligned}$$

$$\begin{aligned}
 \text{e)} \quad & 8 \div \frac{4}{5} \\
 & = \frac{8}{1} \div \frac{4}{5} \\
 & = \frac{8}{1} \times \frac{5}{4} \\
 & = \frac{2}{1} \times \frac{5}{1} \\
 & = 10
 \end{aligned}$$

$$\begin{aligned}
 \text{f)} \quad & \frac{1}{2} \div \frac{6}{7} \\
 & = \frac{1}{2} \times \frac{7}{6} \\
 & = \frac{7}{12}
 \end{aligned}$$

$$\begin{aligned}
 \text{g)} \quad & \frac{28}{32} \div \frac{7}{8} \\
 & = \frac{28}{32} \times \frac{8}{7} \\
 & = \frac{4}{4} \times \frac{1}{1} \\
 & = 1
 \end{aligned}$$

$$\begin{aligned}
 \text{h)} \quad & \frac{11}{7} \div \frac{121}{49} \\
 & = \frac{11}{7} \times \frac{49}{121} \\
 & = \frac{1}{1} \times \frac{7}{11} \\
 & = \frac{7}{11}
 \end{aligned}$$

$$\begin{aligned}
 \text{i)} \quad & \frac{1}{5} \div \frac{3}{8} \\
 & = \frac{1}{5} \times \frac{8}{3} \\
 & = \frac{8}{15}
 \end{aligned}$$

$$\begin{aligned} \text{j)} \quad & \frac{5}{8} \div \frac{5}{6} \\ & = \frac{5}{8} \times \frac{6}{5} \\ & = \frac{1}{4} \times \frac{3}{1} \\ & = \frac{3}{4} \end{aligned}$$

$$\begin{aligned} \text{k)} \quad & \frac{3}{7} \div \frac{9}{21} \\ & = \frac{3}{7} \times \frac{21}{9} \\ & = \frac{1}{1} \times \frac{3}{3} \\ & = 1 \end{aligned}$$

$$\begin{aligned} \text{l)} \quad & \frac{8}{17} \div \frac{32}{34} \\ & = \frac{8}{17} \times \frac{34}{32} \\ & = \frac{1}{1} \times \frac{2}{4} \\ & = \frac{1}{2} \end{aligned}$$

$$\begin{aligned} 8. \quad \text{a)} \quad & \sqrt{\frac{25}{64}} \\ & = \frac{5}{8} \end{aligned}$$

$$\begin{aligned} \text{b)} \quad & \sqrt{\frac{36}{49}} \\ & = \frac{6}{7} \end{aligned}$$

$$\begin{aligned} \text{c)} \quad & \left(\frac{1}{4}\right)^2 \\ & = \frac{1}{16} \end{aligned}$$

$$\begin{aligned} \text{d)} \quad & \left(2\frac{1}{3}\right)^3 \\ & = \left(\frac{7}{3}\right)^3 \\ & = \frac{343}{27} \text{ of } 12\frac{19}{27} \end{aligned}$$

$$\begin{aligned} \text{e)} \quad & \left(2\frac{2}{3}\right)^2 \\ & = \left(\frac{8}{3}\right)^2 \\ & = \frac{64}{9} \text{ of } 9\frac{1}{9} \end{aligned}$$

$$\begin{aligned} \text{f)} \quad & \sqrt[3]{\frac{8}{27}} \\ & = \frac{2}{3} \end{aligned}$$

$$\begin{aligned} \text{g)} \quad & \left(7\frac{1}{2}\right)^2 \\ & = \left(\frac{15}{2}\right)^2 \\ & = \frac{225}{4} \text{ of } 56\frac{1}{4} \end{aligned}$$

$$\begin{aligned} \text{h)} \quad & \sqrt{\frac{100}{121}} \\ & = \frac{10}{11} \end{aligned}$$

$$\begin{aligned} \text{i)} \quad & \sqrt[3]{\frac{1}{125}} \\ & = \frac{1}{5} \end{aligned}$$

$$\begin{aligned} \text{j)} \quad & \left(\frac{4}{5}\right)^3 \\ & = \frac{64}{125} \end{aligned}$$

$$\begin{aligned} \text{k)} \quad & \left(\frac{1}{4}\right)^3 \\ & = \frac{1}{64} \end{aligned}$$

$$\begin{aligned} \text{l)} \quad & \sqrt[3]{\frac{27}{64}} \\ & = \frac{3}{4} \end{aligned}$$

$$\begin{aligned} 9. \quad \text{a)} \quad & 92\% \text{ van } 180 \\ & = \frac{92}{100} \times \frac{180}{1} \\ & = \frac{92}{5} \times \frac{9}{1} \\ & = \frac{828}{5} \text{ of } 165\frac{3}{5} \end{aligned}$$

$$\begin{aligned} \text{b)} \quad & 45\% \text{ van } 40 \\ & = \frac{45}{100} \times \frac{40}{1} \\ & = \frac{9}{1} \times \frac{2}{1} \\ & = 18 \end{aligned}$$

$$\begin{aligned} \text{c)} \quad & 50\% \text{ van } 130 \\ & = \frac{50}{100} \times \frac{130}{1} \\ & = \frac{1}{1} \times \frac{65}{1} \\ & = 65 \end{aligned}$$

$$\begin{aligned} \text{d)} \quad & 25\% \text{ van } 80 \\ & = \frac{25}{100} \times \frac{80}{1} \\ & = \frac{1}{1} \times \frac{20}{1} \\ & = 20 \end{aligned}$$

$$\begin{aligned} \text{e)} \quad & 65\% \text{ van } 5 \\ & = \frac{65}{100} \times \frac{5}{1} \\ & = \frac{13}{4} \times \frac{1}{1} \\ & = 3\frac{1}{4} \end{aligned}$$

$$\begin{aligned} \text{f)} \quad & 33\% \text{ van } 63 \\ & = \frac{33}{100} \times \frac{63}{1} \\ & = \frac{2079}{100} \text{ of } 20,79 \end{aligned}$$

g) 77% van 700

$$\begin{aligned} &= \frac{77}{100} \times \frac{700}{1} \\ &= \frac{77}{1} \times \frac{7}{1} \\ &= 539 \end{aligned}$$

h) 70% van 36

$$\begin{aligned} &= \frac{70}{100} \times \frac{36}{1} \\ &= \frac{7}{5} \times \frac{18}{1} \\ &= \frac{126}{5} \text{ of } 25\frac{1}{5} \end{aligned}$$

i) 20% van 420

$$\begin{aligned} &= \frac{20}{100} \times \frac{420}{1} \\ &= \frac{1}{5} \times \frac{84}{1} \\ &= 84 \end{aligned}$$

j) 68% van 297

$$\begin{aligned} &= \frac{68}{100} \times \frac{297}{1} \\ &= \frac{17}{25} \times \frac{297}{1} \\ &= \frac{5049}{25} \text{ of } 201\frac{24}{25} \end{aligned}$$

k) 120% van 2 268

$$\begin{aligned} &= \frac{120}{100} \times \frac{2268}{1} \\ &= \frac{6}{5} \times \frac{2268}{1} \\ &= \frac{13608}{5} \text{ of } 2\,721\frac{3}{5} \end{aligned}$$

l) 34% van 667

$$\begin{aligned} &= \frac{34}{100} \times \frac{667}{1} \\ &= \frac{17}{50} \times \frac{667}{1} \\ &= \frac{11339}{50} \text{ of } 226\frac{39}{50} \end{aligned}$$

10. a) 400 uit 500

$$\begin{aligned} &= \frac{400}{500} \times 100 \\ &= 80\% \end{aligned}$$

b) 897 uit 950

$$\begin{aligned} &= \frac{897}{950} \times 100 \\ &= 94,42\% \end{aligned}$$

c) 61 uit 70

$$\begin{aligned} &= \frac{61}{70} \times 100 \\ &= 87,14\% \end{aligned}$$

d) 30 uit 45

$$\begin{aligned} &= \frac{30}{45} \times 100 \\ &= 66,67\% \end{aligned}$$

e) 63 uit 72

$$\begin{aligned} &= \frac{63}{72} \times 100 \\ &= 87,5\% \end{aligned}$$

f) 92 uit 110

$$\begin{aligned} &= \frac{92}{110} \times 100 \\ &= 83,64\% \end{aligned}$$

g) 46 uit 50

$$\begin{aligned} &= \frac{46}{50} \times 100 \\ &= 92\% \end{aligned}$$

h) 54 uit 80

$$\begin{aligned} &= \frac{54}{80} \times 100 \\ &= 67,5\% \end{aligned}$$

i) 278 uit 1 500

$$\begin{aligned} &= \frac{278}{1500} \times 100 \\ &= 18,53\% \end{aligned}$$

j) 67 uit 500

$$\begin{aligned} &= \frac{67}{500} \times 100 \\ &= 13,4\% \end{aligned}$$

11. a) 63 tot 72
 $= \frac{72-63}{63} \times 100$
 $= \frac{9}{63} \times 100$
 $= \frac{1}{7} \times 100$
 $= 14,29\%$ toename
- b) 24 tot 48
 $= \frac{48-24}{24} \times 100$
 $= \frac{24}{24} \times 100$
 $= 100\%$ toename
- c) 65 tot 90
 $= \frac{90-65}{65} \times 100$
 $= \frac{25}{65} \times 100$
 $= \frac{5}{13} \times 100$
 $= 38,46\%$ toename
- d) 19 tot 21
 $= \frac{21-19}{19} \times 100$
 $= \frac{2}{19} \times 100$
 $= 10,53\%$ toename
- e) 29 tot 42
 $= \frac{42-29}{29} \times 100$
 $= \frac{13}{29} \times 100$
 $= 44,83\%$ toename
- f) 99 tot 100
 $= \frac{100-99}{99} \times 100$
 $= \frac{1}{99} \times 100$
 $= 1,01\%$ toename
- g) 75 tot 100
 $= \frac{100-75}{75} \times 100$
 $= \frac{25}{75} \times 100$
 $= \frac{1}{3} \times 100$
 $= 33,33\%$ toename
- h) 64 tot 108
 $= \frac{108-64}{64} \times 100$
 $= \frac{44}{64} \times 100$
 $= \frac{11}{16} \times 100$
 $= 68,75\%$ toename
- i) 32 tot 36
 $= \frac{36-32}{32} \times 100$
 $= \frac{4}{32} \times 100$
 $= \frac{1}{8} \times 100$
 $= 12,5\%$ toename
- j) 90 tot 86
 $= \frac{90-86}{90} \times 100$
 $= \frac{4}{90} \times 100$
 $= \frac{2}{45} \times 100$
 $= 4,44\%$ afname
- k) 51 tot 34
 $= \frac{51-34}{51} \times 100$
 $= \frac{17}{51} \times 100$
 $= \frac{1}{3} \times 100$
 $= 33,33\%$ afname
- l) 64 tot 56
 $= \frac{64-56}{64} \times 100$
 $= \frac{8}{64} \times 100$
 $= \frac{1}{8} \times 100$
 $= 12,5\%$ afname
12. a) 390 het met 15% toegeneem
 $= 448,5\%$
- b) 412 het met 20% afgeneem
 $= 329,6$
- c) 655 het met 30% toegeneem
 $= 851,5$
- d) 980 het met 60% afgeneem
 $= 392$
- e) 1298 het met 50% toegeneem
 $= 1\ 947$
- f) 1 349 het met 45% afgeneem
 $= 741,95$
- g) 492 het met 11% toegeneem
 $= 546,12$
- h) 2 890 het met 12% afgeneem
 $= 2\ 543,2$

- i) 5 890 het met 17% toegeneem
= 6 891,3
- j) 652 het met 92% afgeneem
= 52,16

13. a) Suzy, Georgia en Bernadette doen 'n projek saam. Suzy doen $\frac{5}{18}$ van die projek, Georgia doen $\frac{2}{9}$ van die projek en Bernadette doen $\frac{1}{2}$ van die projek.

- i) Hoeveel van die projek moet nog voltooi word?

$$= \frac{18}{18} - \frac{5}{18} (\text{Suzy}) - \frac{4}{18} (\text{Georgia}) - \frac{9}{18} (\text{Bernadette})$$

$$= 0$$

- ii) Wie dink jy moet die laaste gedeelte van die projek doen? Gee 'n rede vir jou antwoord.

Daar is geen deel van die projek oor om te doen nie.

- b) Bob se bling en stukkies het 'n uitverkoop. Items in Kategorie A word met 25% afgemerkt en items in Kategorie B word met 45% afgemerkt. Vind die pryse vir elk van hierdie items:

Bling Ketting – oorspronklike prys = R195 Bling Ring – oorspronklike prys = R340

Bling Serp – oorspronklike prys = R95 Oorbelle – oorspronklike prys = R120.

- i) as hulle in kategorie A is

$$\text{Bling halssnoer} = 195 - 25\% = \text{R}146,25$$

$$\text{Bling Ring} = \text{R}340 - 25\% = \text{R}255$$

$$\text{Bling Serp} = \text{R}95 - 25\% = \text{R}71,25$$

$$\text{Oorbelle} = \text{R}120 - 25\% = \text{R}90$$

- ii) as hulle in kategorie B is.

$$\text{Bling halssnoer} = 195 - 45\% = \text{R}107,25$$

$$\text{Bling Ring} = \text{R}340 - 45\% = \text{R}187$$

$$\text{Bling Serp} = \text{R}95 - 45\% = \text{R}52,25$$

$$\text{Oorbelle} = \text{R}120 - 45\% = \text{R}66$$

- c) Siphon koop 'n motor vir R169 000. Hy betaal 'n deposito van 15% en maak dan maandelikse paaieimente van 1% van die oorskietbedrag vir 9 jaar.

- i) Watter bedrag moet Siphon vir die deposito betaal?

$$\text{R}169\,000 \times 15\% = \text{R}25\,350$$

- ii) Wat is die maandelikse betaling wat Siphon maak?

$$\text{R}169\,000 - 25\,350 = \text{R}143\,650$$

$$\text{Maandelikse paaieimente} = \text{R}1\,436,50$$

- iii) Hoeveel betaal Siphon altesaam vir die motor?

$$= \text{R}1\,436,50 \times 9 \times 12 + \text{R}25\,350 = \text{R}180\,492.$$