



**Uitwerkingen extra opgaven hoofdstuk 1 Rekenen met getallen**

1.
  - a  $-1-2-3=-6$
  - b  $-1-(2-3)=-1-(-1)=-1+1=0$
  - c  $-1-(-2)-3=-1+2-3=-2$
  - d  $-1-(-2-3)=-1-(-5)=-1+5=4$
  - e  $-5-3-1=-9$
  - f  $-5-(1-3)=-5-(-2)=-5+2=-3$
  - g  $-5-(-3)-1=-5+3-1=-3$
  - h  $-5-(-3-1)=-5-(-3-1)-5-(-4)=-5+4=-1$
  - i  $-3-(2-6)=-3-(-4)=-3+4=1$
  - j  $-1-(-3)-1=-1+3-1=1$
  
2.
  - a  $2+6/4+(2+6)/4=2+3/2+8/4=2+3/2+2=5\frac{1}{2}$
  - b  $2+6/(4+2)/4=2+6/6/4=2+1/4=2\frac{1}{4}$
  - c  $(1+6)/(4+6/2)=7/(4+3)=7/7=1$
  - d  $-3\times(-4)-5+6-7\times8=12-5-56=-49$
  - e  $3-9/6-(3+9)/6=3-3/2-12/6=3-3/2-2=-\frac{1}{2}$
  - f  $2+9/(4-1)/3=2+9/3/3=2+3/3=2+1=3$
  - g  $(-1+6)/(3+4/2)=5/(3+2)=5/5=1$
  - h  $5-3\times(-4)-5+6-6/2\times3=5+12-5+6-3\times3=5+12-5+6-9=9$
  
3.
  - a  $-3\times(4-5)=-3\times4+3\times5$ ; waar: associatieve eigenschap
  - b  $-3\times(-4-5)=3\times4-3\times5$ ; niet waar:  $-3\times(-4-5)=3\times4-3\times(-5)$
  - c  $(3-8)=-(-8-3)$ ; waar, associatieve eigenschap en commutatieve eigenschap
  - d  $-2+(4-5)=-2+4+2+5$ ; niet waar:  $-2+(4-5)=-2+4-5$
  - e  $-3\times(4+5)=-3\times4-3\times5$ ; waar: associatieve eigenschap
  - f  $-3\times(4-5)=-3\times4+3\times5$ ; waar: associatieve eigenschap
  - g  $(5-9)=-(-9-5)$ ; waar, associatieve eigenschap en commutatieve eigenschap
  - h  $-3+(4-5)=-3+4+3+5$ ; niet waar:  $-3+(4-5)=-3+4-5$
  
4.
  - a 2 en 5: kgv=10
  - b 3 en 8 : kgv=24
  - c 4 en 6; kgv=12
  - d 5 en 15; kgv=15
  - e 6 en 22; kgv=66
  - f 12 en 18; kgv=36
  
5.
  - a 2, 5 en 6; kgv=30
  - b 3, 8 en 12; kgv=24
  - c 4, 5 en 6; kgv=60
  - d 5, 6 en 7; kgv=210



## Toegepaste Wiskunde inleiding

e 6, 15 en 20; kgv=120

f 8, 9 en 12; kgv=72

6. a  $1\frac{5}{12} - \frac{7}{12} - 2\frac{7}{12} = \frac{17}{12} - \frac{7}{12} - \frac{31}{12} = \frac{17-7-31}{12} = \frac{-21}{12} = \frac{-7}{4} = -1\frac{3}{4}$

b  $1\frac{3}{8} - \frac{5}{8} - 2\frac{7}{8} = \frac{11}{8} - \frac{5}{8} - \frac{23}{8} = \frac{11-5-23}{8} = \frac{-17}{8} = -2\frac{1}{8}$

c  $2\frac{3}{7} - \frac{4}{7} - 3\frac{6}{7} = \frac{17}{7} - \frac{4}{7} - \frac{27}{7} = \frac{17-4-27}{7} = \frac{-14}{7} = -2$

d  $3\frac{1}{8} + \frac{7}{20} - 2\frac{2}{5} = \frac{25}{8} + \frac{7}{20} - \frac{12}{5} = \frac{125}{40} + \frac{14}{40} - \frac{96}{40} = \frac{125+14-96}{40} = \frac{43}{40} = 1\frac{3}{40}$

e  $3\frac{1}{6} + \frac{7}{12} - 2\frac{2}{9} = \frac{19}{6} + \frac{7}{12} - \frac{20}{9} = \frac{114}{36} + \frac{21}{36} - \frac{80}{36} = \frac{114+21-80}{36} = \frac{55}{36} = 1\frac{19}{36}$

f  $2\frac{1}{8} + \frac{5}{12} - 2\frac{5}{6} = \frac{17}{8} + \frac{5}{12} - \frac{17}{6} = \frac{51}{24} + \frac{10}{24} - \frac{68}{24} = \frac{51+10-68}{24} = \frac{-7}{24} = -\frac{7}{24}$

7. a  $2\frac{11}{12} \cdot \frac{3}{7} = \frac{35}{12} \cdot \frac{3}{7} = \frac{35 \cdot 3}{12 \cdot 7} = \frac{5 \cdot 1}{4 \cdot 1} = \frac{5}{4} = 1\frac{1}{4}$

b  $2\frac{2}{15} \cdot \frac{3}{8} = \frac{32}{15} \cdot \frac{3}{8} = \frac{32 \cdot 3}{15 \cdot 8} = \frac{4 \cdot 1}{5 \cdot 1} = \frac{4}{5}$

c  $2\frac{5}{11} \cdot \frac{2}{9} = \frac{27}{11} \cdot \frac{2}{9} = \frac{27 \cdot 2}{11 \cdot 9} = \frac{3 \cdot 2}{11 \cdot 1} = \frac{6}{11}$

d  $\frac{5\frac{2}{11}}{-2\frac{13}{22}} = -\frac{\frac{57}{11}}{\frac{57}{22}} = -\frac{57}{11} \cdot \frac{22}{57} = -\frac{1}{1} \cdot \frac{2}{1} = -2$

e  $\frac{1\frac{3}{8}}{2\frac{3}{4}} = \frac{\frac{11}{8}}{\frac{11}{4}} = \frac{11}{8} \cdot \frac{4}{11} = \frac{1}{2} \cdot \frac{1}{1} = \frac{1}{2}$

f  $\frac{-3\frac{4}{13}}{1\frac{17}{26}} = -\frac{\frac{43}{13}}{\frac{43}{26}} = -\frac{43}{13} \cdot \frac{26}{43} = -\frac{1}{1} \cdot \frac{2}{1} = -2$

8. a  $2\frac{11}{12} \cdot \frac{3}{7} + 1\frac{3}{8} - 2\frac{5}{8} = \frac{35}{12} \cdot \frac{3}{7} + \frac{11}{8} - \frac{21}{8} = \frac{5}{4} + \frac{11}{8} - \frac{21}{8} = \frac{10+11-21}{8} = 0$

b

$4\frac{4}{15} \cdot \frac{3}{8} - 3\frac{3}{7} \cdot \frac{7}{4} + \frac{5}{6} \cdot 3\frac{3}{4} = \frac{64}{15} \cdot \frac{3}{8} - \frac{24}{7} \cdot \frac{7}{4} + \frac{5}{6} \cdot \frac{15}{4} = \frac{8}{5} - \frac{6}{1} + \frac{25}{8} = \frac{64}{40} - \frac{240}{40} + \frac{125}{40} = \frac{51}{40} = 1\frac{11}{40}$

c  $\frac{2\frac{9}{11} - 3\frac{5}{22}}{-\frac{13}{22} \cdot \frac{3}{8} + \frac{5}{16}} = \frac{\frac{31}{11} - \frac{71}{22}}{-\frac{39}{176} + \frac{5}{16}} = \frac{\frac{62}{22} - \frac{71}{22}}{-\frac{39}{176} + \frac{55}{176}} = \frac{-\frac{9}{22}}{\frac{16}{176}} = \frac{-\frac{9}{22}}{\frac{1}{11}} = -\frac{9}{22} \cdot \frac{11}{1} = -\frac{9}{2} = -4\frac{1}{2}$

d  $\frac{5\frac{2}{3} \cdot \frac{5}{8} - 2\frac{1}{4}}{1\frac{7}{18} - \frac{5}{15} \cdot \frac{4}{6}} = \frac{\frac{17}{3} \cdot \frac{5}{8} - \frac{9}{4}}{\frac{17}{18} - \frac{9}{90}} = \frac{\frac{85}{24} - \frac{9}{4}}{\frac{85}{90} - \frac{54}{90}} = \frac{\frac{85}{24} - \frac{54}{24}}{\frac{31}{90}} = \frac{\frac{31}{24}}{\frac{31}{90}} = \frac{31}{24} \cdot \frac{90}{31} = \frac{31}{4} \cdot \frac{15}{76} = \frac{465}{304} = 1\frac{161}{304}$

9. a  $\frac{3}{16} = \frac{3 \times 625}{10000} = 0,1875$

b  $-1\frac{3}{8}; \frac{3}{8} = \frac{375}{8} = 0,375$ , dus  $-1\frac{3}{8} = -1,375$

c  $2\frac{3}{80}; \frac{3}{80} = \frac{3 \times 125}{10000} = 0,0375$ , dus  $2\frac{3}{80} = 2,0375$

d  $2\frac{11}{40}; \frac{11}{40} = \frac{11 \times 25}{1000} = \frac{275}{1000} = 0,275$ , dus  $2\frac{11}{40} = 2,275$



## Toegepaste Wiskunde inleiding

- 10.**
- a  $0,74 = \frac{74}{100} = \frac{37}{50}$
  - b  $0,75 = \frac{75}{100} = \frac{3}{4}$
  - c  $0,76 = \frac{76}{100} = \frac{19}{25}$
  - d  $2,27 = 2\frac{27}{100} = \frac{227}{100}$
  - e  $1,0125 = 1\frac{125}{10000} = 1\frac{1}{80} = \frac{81}{80}$
  - f  $-0,025 = -\frac{25}{1000} = -\frac{1}{40}$
- 11.**
- a 3 decimalen: 41,834
  - b 2 decimalen: 41,83
  - c 0 decimalen (gehelen): 42
  - d 100-tallen: 0
- 12.**
- a 4 decimalen: 751,8468
  - b 2 decimalen: 751,85
  - c 0 decimalen (gehelen): 752
  - d 10-tallen: 750
- 13.**
- a  $-34567898,7654 = -3,45678987654E07$
  - b  $-0,0001000786 = -1,000786E-04$
  - c  $-468021,357 = -4,68021357E05$
  - d  $-0,000080321 = -8,0321E-05$
- 14.**
- a  $2,897E06 = 2897000$
  - b  $-7,5E-04 = -0,00075$
  - c  $-3,7E03 = -3700$
  - d  $4,879E-01 = 0,4879$
  - e  $2,897504E05 = 289750,4$
  - f  $-7,503E-03 = -0,007503$
  - g  $-7,03E04 = -70300$
  - h  $4,879E-02 = 0,04879$
- 15.**
- a  $3,27 - 4,21 + 100200,13 \approx 3 - 4 + 100200 = 100199$
  - b  $403,27 - 100,81 + 148,13 \approx 403 - 101 + 148 = 450$
  - c  $3,17 \times 5,84 \approx 3 \times 6 = 18$
  - d  $511 \times 7,8 \approx 500 \times 8 = 4000$
- 16.**
- a  $\frac{413,21}{51,97} \approx \frac{400}{50} = 8$
  - b  $\frac{1001-3}{98+3} \approx \frac{1000}{100} = 10$
  - c  $\frac{29 \times 31}{28 \times 32} \approx \frac{30 \times 30}{30 \times 30} = 1$
  - d  $\frac{17 \times 22 - 1}{0,01 - 1} \approx \frac{20 \times 20 - 1}{0,01 - 1} \approx \frac{400}{-1} = -400$