

## Uitwerkingen hoofdstuk 1

### 1.1.1

1. a.  $-4 \cdot -24 = 96$   
b.  $-4 - -24 = -4 + 24 = 20$   
c.  $-4 + -24 = -28$   
d.  $-24 \cdot -4 = 96$   
e.  $8 - 7 \cdot 4 = 8 - 28 = -20$   
f.  $(8 - 7) \cdot 4 = 1 \cdot 4 = 4$
  
2. a.  $-(-3 + 1) = -(-2) = 2$   
b.  $-(13 - 18) = -(-5) = 5$   
c.  $(8 - 7) - (7 - 8) = 1 - (-1) = 1 + 1 = 2$   
d.  $-(-(-1)) = -(+1) = -1$   
e.  $-3 \cdot (14 - 6) = -3 \cdot 8 = -24$   
f.  $-3 \cdot (6 - 12) = -3 \cdot -6 = 18$
  
3. a.  $b \cdot (p - q + r) = b \cdot p - b \cdot q + b \cdot r$   
b.  $-2 \cdot (p - q + r) = -2 \cdot p + 2 \cdot q - 2 \cdot r$   
c.  $-a \cdot (3 - 2 \cdot (c + d)) = -3 \cdot a + 2 \cdot a \cdot c + 2 \cdot a \cdot d$   
d.  $-(a + b \cdot (a - c)) = -a - a \cdot b + b \cdot c$   
e.  $-(p \cdot q \cdot r) = -p \cdot q \cdot r$   
f.  $-a \cdot (-p \cdot -q \cdot -r) = a \cdot p \cdot q \cdot r$
  
4. Bereken voor  $a = 3$  en  $b = -4$ :  
a.  $a + b = 3 + (-4) = 3 - 4 = -1$   
b.  $a - b = 3 - (-4) = 3 + 4 = 7$   
c.  $-(a - 3 \cdot b) = -(3 - 3 \cdot -4) = -(3 + 12) = -15$   
d.  $-a - 3 \cdot b = -3 - 3 \cdot -4 = -3 + 12 = 9$   
e.  $4 \cdot a + 3 \cdot b = 4 \cdot 3 + 3 \cdot -4 = 12 - 12 = 0$   
f.  $3 \cdot b - 4 \cdot a = 3 \cdot -4 - 4 \cdot 3 = -12 - 12 = -24$

## 1.2.1

1. a.  $\frac{2 \cdot 3 \cdot 4}{2} = 3 \cdot 4 = 12$
  - b.  $\frac{3 \cdot 5 \cdot 6 \cdot 7}{5 \cdot 6} = 3 \cdot 7 = 21$
  - c.  $\frac{3 \cdot 5 + 3 \cdot 7}{3} = \frac{3 \cdot (5 + 7)}{3} = 5 + 7 = 12$
  - d.  $\frac{6 \cdot (5 + 2) \cdot 7}{3} = \frac{6 \cdot 7 \cdot 7}{3} = 2 \cdot 7 \cdot 7 = 98$
  - e.  $\frac{99 \cdot 8 - 101 \cdot 8}{16} = \frac{(99 - 101) \cdot 8}{16} = \frac{-2 \cdot 8}{16} = \frac{-16}{16} = -1$
  - f.  $\frac{25 + 12 \cdot 25 - 75}{5} = 5 + 12 \cdot 5 - 15 = 5 + 60 - 15 = 50$
2. a.  $2\frac{1}{5} + 7\frac{1}{3} = 2\frac{3}{15} + 7\frac{5}{15} = 9\frac{8}{15}$
  - b.  $2\frac{1}{5} - 7\frac{1}{3} = 2\frac{3}{15} - 7\frac{5}{15} = -5\frac{2}{15}$
  - c.  $2\frac{1}{5} \cdot 7\frac{1}{3} = \frac{11}{5} \cdot \frac{22}{3} = \frac{242}{15} = 16\frac{2}{15}$
  - d.  $2\frac{1}{5} : 7\frac{1}{3} = \frac{11}{5} : \frac{22}{3} = \frac{11}{5} \cdot \frac{3}{22} = \frac{1}{5} \cdot \frac{3}{2} = \frac{3}{10}$
  - e.  $\frac{3}{4} : \frac{1}{4} = \frac{3}{4} \cdot \frac{4}{1} = 3$
  - f.  $\frac{2}{3} : 3 = \frac{2}{3} \cdot \frac{1}{3} = \frac{2}{9}$
3. a.  $a(b + 12) = ab + 12a$
  - b.  $-4(a - b) = -4a + 4b$
  - c.  $6a(7 - b - 2c) = 42a - 6ab - 12ac$
  - d.  $(10a - b + 1) \cdot 3c = 30ac - 3bc + 3c$
  - e.  $5pq(2s - t - 1) = 10pqs - 5pqt - 5pq$
  - f.  $-xy(4z - 1) = -4xyz + xy$

4. a.  $\frac{abc}{2a} = \frac{1}{2}bc$

b.  $\frac{14abcd}{7cd} = 2ab$

c.  $\frac{9a + 15ab}{3a} = 3 + 5b$

d.  $\frac{xy - 3x(y - 1)}{2x} = \frac{y - 3(y - 1)}{2} = \frac{y - 3y + 3}{2} = \frac{-2y + 3}{2} = -y + 1\frac{1}{2}$

e.  $\frac{(x - 1)y - (x + 1)y}{2yz} = \frac{xy - y - xy - y}{2yz} = \frac{-2y}{2yz} = -\frac{1}{z}$

f.  $\frac{-6xy(4z - 1)}{3y} = -2x(4z - 1) = -8xz + 2x$

5. a.  $\frac{1}{2x + 1} - \frac{1}{2} = \frac{2}{2(2x + 1)} - \frac{2x + 1}{2(2x + 1)} = \frac{2 - (2x + 1)}{2(2x + 1)} = \frac{2 - 2x - 1}{2(2x + 1)} = \frac{-2x + 1}{2(2x + 1)}$

b.  $\frac{1}{x - 1} - \frac{1}{2} = \frac{2}{2(x - 1)} - \frac{x - 1}{2(x - 1)} = \frac{2 - (x - 1)}{2(x - 1)} = \frac{2 - x + 1}{2(x - 1)} = \frac{-x + 3}{2(x - 1)} = -\frac{x - 3}{2(x - 1)}$

c.  $\frac{1}{x + 1} - \frac{1}{x - 1} = \frac{x - 1}{(x + 1)(x - 1)} - \frac{x + 1}{(x + 1)(x - 1)} = \frac{x - 1 - x - 1}{(x + 1)(x - 1)} = \frac{-2}{(x + 1)(x - 1)}$

d.  $\frac{x}{2x + 1} - \frac{1}{3} = \frac{3x}{3(2x + 1)} - \frac{2x + 1}{3(2x + 1)} = \frac{3x - 2x - 1}{3(2x + 1)} = \frac{x - 1}{3(2x + 1)}$