

# oefeningen

## Product van lettervormen

### 1. Werk zo ver mogelijk uit door toepassing van de distributiviteit.

- a)  $6 \bullet (a+b) = \dots 6a + 6b \dots$
- b)  $3 \bullet (a-4) = \dots 3a - 12 \dots$
- c)  $2 \bullet (7+x) = \dots 14 + 2x \dots$
- d)  $(a-5) \bullet 2 = \dots 2a - 10 \dots$
- e)  $3 \bullet (a+b-2) = \dots 3a + 3b - 6 \dots$
- f)  $(a+b) \bullet c = \dots ac + bc \dots$
- g)  $3 \bullet (x+y+z) = \dots 3x + 3y + 3z \dots$
- h)  $5 \bullet (a+b+c) = \dots 5a + 5b + 5c \dots$
- i)  $(5-x) \bullet (-6) = \dots +6x - 30 = -30 + 6x \dots$
- j)  $4 \bullet (2+a) = \dots 8 + 4a \dots$
- k)  $\frac{1}{3} \bullet (p+q+r) = \dots \frac{1}{3}p + \frac{1}{3}q + \frac{1}{3}r \dots$
- l)  $(5+b) \bullet \frac{2}{5} = \dots 2 + \frac{2}{5}b \dots$

### 2. Werk zo ver mogelijk uit door toepassing van de distributiviteit.

- a)  $5 \bullet (3a+2b) = \dots 15a + 10b \dots$
- b)  $6 \bullet (2x-3y) = \dots 12x - 18y \dots$
- c)  $3 \bullet (5a-1) = \dots 15a - 3 \dots$
- d)  $(-9) \bullet (2a-3b+2) = \dots -18a + 27b - 18 \dots$
- e)  $(-2a-3b) \bullet 7 = \dots -14a - 21b \dots$

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- f)  $(2x^2 - 3x + 4) \cdot 5 = \dots 10x^2 - 15x + 20$
- g)  $9 \cdot (-a + b - 3x) = \dots -9a + 9b - 27x$
- h)  $(5x - 3y - 6) \cdot 4 = \dots 20x - 12y - 24$
- i)  $-3 \cdot (-x^2 - 6x + 7) = \dots 3x^2 + 18x - 21$
- j)  $3 \cdot (x^2 + 2x + 1) = \dots 3x^2 + 6x + 3$
- k)  $(6a - 3b + 5) \cdot \frac{1}{4} = \dots \frac{3}{2}a - \frac{3}{4}b + \frac{5}{4}$
- l)  $\frac{2}{9} \cdot (-x - 2y - z) = \dots -\frac{2}{9}x - \frac{4}{9}y - \frac{2}{9}z$

### 3. Werk zo ver mogelijk uit door toepassing van de distributiviteit.

- a)  $5x \cdot (3 + 2y) = \dots 15x + 10xy$
- b)  $2a \cdot (a + b) = \dots 2a^2 + 2ab$
- c)  $x \cdot (x^2 - 6) = \dots x^3 - 6x$
- d)  $-2x \cdot (a - b) = \dots -2ax + 2bx$
- e)  $(2x - y^2) \cdot (-3y^2) = \dots -6x^2y^2 + 3y^4$
- f)  $-2x \cdot (-x + 3) = \dots 2x^2 - 6x$
- g)  $2ab \cdot (7a - 4b) = \dots 14a^2b - 8ab^2$
- h)  $a \cdot (a + 2b) = \dots a^2 + 2ab$
- i)  $(x^2 - 4x + 3) \cdot (4x) = \dots 4x^3 - 16x^2 + 12x$
- j)  $(4ab - 2bc) \cdot 2abc = \dots 8a^2b^2c - 4abc^2$
- k)  $-3x^3 \cdot (4x^2 + 2x - 5) = \dots -12x^5 - 6x^4 + 15x^3$
- l)  $(2x - 5y) \cdot (-3x^2y) = \dots -6x^3y + 15x^2y^2$
- m)  $q^3 \cdot (-q - 1) = \dots -q^4 - q^3$

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n)  $(2t-4) \cdot 3 = \dots 6t - 12$

o)  $7ab \cdot (3a^2b - 3) = \dots 21a^3b^2 - 21ab$

p)  $\frac{1}{3}a^2b \cdot (a^2 + 3ab - b^2) = \dots \frac{1}{3}a^4b + a^3b^2 - \frac{1}{3}a^2b^3$

q)  $(3ax + 5by - ab) \cdot \frac{2ab}{3} = \dots 2a^2b^2x + \frac{10}{3}a^2b^2y - \frac{2}{3}a^2b^2$

**4. Werk zo ver mogelijk uit door toepassing van de distributiviteit.**

a)  $x \cdot (x+2) = \dots x^2 + 2x$

b)  $x \cdot (x+3) = \dots x^2 + 3x$

c)  $3x^2 \cdot (2x+3) = \dots 6x^3 + 9x^2$

d)  $-x \cdot (3x^2 - 4) = \dots -3x^3 + 4x$

e)  $2x \cdot (-2x-3) = \dots -4x^2 - 6x$

f)  $3x \cdot (x-1) = \dots 3x^2 - 3x$

g)  $2a^2 \cdot (3a-4) = \dots 6a^3 - 8a^2$

h)  $2a^2 \cdot (3a+4a^2b) = \dots 6a^3 + 8a^4b$

i)  $-2x^3 \cdot (3x^2 - 4x - 5) = \dots -6x^5 + 8x^4 + 10x^3$

j)  $5x^3 \cdot (x^2 - 9x + 4) = \dots 5x^5 - 45x^4 + 20x^3$

k)  $-2a \cdot (2a^2 + 4a - 6) = \dots -4a^3 - 8a^2 + 12a$

l)  $3pq \cdot (p^2 + 3q - 1) = \dots 3p^3q + 9pq^2 - 3pq$

m)  $p^2q \cdot (2p^2 + 3pq - q^2) = \dots 2p^4q + 3p^3q^2 - p^2q^3$

n)  $\frac{-3}{4}st^2 \cdot (s^2 + 3st - 4t^4) = \dots \frac{-3}{4}s^3t^2 - \frac{9}{4}s^2t^3 + 3st^6$

o)  $-\frac{2}{3}x^2 \cdot (6x^3 - 12x^2 + 9) = \dots -4x^5 + 8x^4 - 6x^2$

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p)  $-\frac{1}{4}xy^2 \cdot (x^2 - 4x) = \dots -\frac{1}{4}x^3y^2 + x^2y^2$

q)  $\frac{1}{2}a^2c \cdot (4a - 6c + ac^3) = \dots 2a^3c - 3ac^2 + \frac{1}{2}a^3c^4$

## 5. #2# Werk zo ver mogelijk uit door toepassing van de distributiviteit.

a) #2#  $\frac{3}{4}a^3x \cdot \left(-\frac{2}{5}a^3x + \frac{1}{3}a^2x^2\right) = \dots -\frac{3}{10}a^6x^2 + \frac{1}{4}a^5x^3$

b) #2#  $-\frac{1}{3}x^2y \cdot (12x^2 + 6y^3) = \dots -4x^4y - 2x^2y^4$

c) #2#  $\frac{9}{10}a^2b \cdot \left(\frac{1}{10}a^3b - 3ab^3\right) = \dots \frac{9}{100}a^5b^2 - \frac{27}{10}a^3b^4$

d) #2#  $-\frac{1}{2}x^2y^3 \cdot (10x^2y^2 - 15) = \dots -5x^4y^5 + \frac{15}{2}x^2y^3$

e) #2#  $-2xy^2 \cdot \left(\frac{1}{5}x^2 - \frac{3}{4}xy + \frac{5}{8}y^2\right) = \dots -\frac{2}{5}x^3y^2 + \frac{3}{2}x^2y^3 - \frac{5}{4}xy^4$

f) #2#  $\frac{1}{2}abc \cdot \left(\frac{1}{5}ab - \frac{3}{10}bc + \frac{1}{2}ac\right) = \dots \frac{1}{10}a^2b^2c - \frac{3}{20}abc^2 + \frac{1}{4}a^2bc^2$

g) #2#  $(16ab - 12ab^2 - 3a) \cdot \left(-\frac{3}{4}ab^2\right) = \dots -12a^2b^3 + 9a^2b^4 + \frac{9}{4}a^2b^2$

h) #2#  $(25a^2 - 6ab^2 + 15b^2) \cdot \frac{2}{5}ab^3 = \dots 10a^3b^3 - \frac{12}{5}a^2b^5 + 6ab^5$

## 6. Werk uit door toepassing van de uitgebreide distributiviteit.

a)  $(a+b) \cdot (c+d) = \dots ac + ad + bc + bd$

b)  $(a-b) \cdot (c+d) = \dots ac + ad - bc - bd$

c)  $(a-b) \cdot (c-d) = \dots ac - ad - bc + bd$

d)  $(a+2b) \cdot (x+y) = \dots ax + ay + 2bx + 2by$

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- e)  $(3a - 2b) \bullet (x + y) = \dots 3ax + 3ay - 2bx - 2by \dots$
- f)  $(2a - 3b) \bullet (4x - 3y) = \dots 8ax - 6ay - 12bx + 9by \dots$
- g)  $(a + 2) \bullet (b + 5) = \dots ab + 5a + 1b + 10 \dots$
- h)  $(x + 3) \bullet (y + 4) = \dots xy + 4x + 3y + 12 \dots$
- i)  $(a + 6) \bullet (5 - b) = \dots 5a - ab + 30 - 6b \dots$
- j)  $(2a - 1) \bullet (b + 3) = \dots 2ab + 6a - b - 3 \dots$
- k)  $(3a + 2) \bullet (b + 5) = \dots 3ab + 15a + 1b + 10 \dots$
- l)  $(5a - 3b) \bullet (2x - 4) = \dots 10ax - 10a - 6bx + 12b \dots$
- m)  $(a + 2) \bullet (b - c + 4) = \dots ab - ac + 4a + 1b - 1c + 8 \dots$
- n)  $(2a + b + 3c) \bullet (x + 5y) = \dots 2ax + 10ay + bx + 5by + 3cx + 15cy \dots$

## 7. Werk uit door toepassing van de uitgebreide distributiviteit en herleid.

- a)  $(x + 3) \bullet (x + 4) = \dots x^2 + 4x + 3x + 12 \dots$   
 $\dots x^2 + 7x + 12 \dots$
- b)  $(x + 4) \bullet (x - 5) = \dots x^2 - 5x + 4x - 20 \dots$   
 $\dots x^2 - x - 20 \dots$
- c)  $(x - 7) \bullet (x + 2) = \dots x^2 + 2x - 7x - 14 \dots$   
 $\dots x^2 - 5x - 14 \dots$
- d)  $(x - 5) \bullet (x - 2) = \dots x^2 - 5x - 2x + 10 \dots$   
 $\dots x^2 - 7x + 10 \dots$
- e)  $(a - 1) \bullet (a + 7) = \dots a^2 + 7a - a - 7 \dots$   
 $\dots a^2 + 6a - 7 \dots$

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f)  $(5a-3) \bullet (2a-4) = \dots 10a^2 - 10a - 6a + 12$

$$\dots 10a^2 - 16a + 12$$

g)  $(1+4x) \bullet (3-x) = \dots 3 - 3x + 12x - 4x^2$

$$= 3 + 11x - 4x^2$$

h)  $(x-1) \bullet (x+6) = \dots x^2 + 6x - x - 6$

$$\dots x^2 + 5x - 6$$

## 8. Werk uit door toepassing van de uitgebreide distributiviteit en herleid.

a)  $(x+2) \bullet (x-5) = \dots x^2 - 5x + 2x - 10$

$$\dots x^2 - 3x - 10$$

b)  $(a-3) \bullet (b+4) = \dots ab + 4a - 3b - 12$

$$\dots$$

c)  $(a-b) \bullet (c-d) = \dots ac - ad - bc + bd$

$$\dots$$

d)  $(-a-b) \bullet (c-d) = \dots -ac + ad - bc + bd$

$$\dots$$

e)  $(-a-b) \bullet (-c-d) = \dots ac + ad + bc + bd$

$$\dots$$

f)  $(2x+5) \bullet (3x-2) = \dots 6x^2 - 4x + 15x - 10$

$$\dots 6x^2 + 11x - 10$$

g)  $(4x-7y) \bullet (5x-3y) = \dots 20x^2 - 19xy - 35xy + 21y^2$

$$\dots 20x^2 - 47xy + 21y^2$$

h)  $(6a-b) \bullet (3b-2a) = \dots 18ab - 19a^2 - 3b^2 + lab$

$$\dots 18ab - 19a^2 - 3b^2$$

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i)  $(2ab+5) \cdot (-3ab+1) = -6a^2b^2 + 2ab - 15ab + 5$

$$\dots -6a^2b^2 - 13ab + 5$$

j)  $(3x^2 + xy) \cdot (x - y) = 3x^3 - 3x^2y - x^2y + xy^2$

$$\dots 3x^3 - 2x^2y - xy^2$$

k)  $(2x^2 + x - 3) \cdot (x + 1) = 2x^3 + 2x^2 + x^2 + x - 3x - 3$

$$\dots 2x^3 + 3x^2 - 2x - 3$$

9. #2# Werk uit door toepassing van de uitgebreide distributiviteit en herleid.

a) #2#  $\left(x + \frac{1}{2}\right) \cdot \left(x + \frac{1}{3}\right) = x^2 + \frac{1}{3}x + \frac{1}{2}x + \frac{1}{6}$

$$\dots x^2 + \frac{5}{6}x + \frac{1}{6}$$

b) #2#  $\left(y - \frac{1}{4}\right) \cdot \left(\frac{1}{4}y + \frac{1}{5}\right) = \frac{1}{4}y^2 + \frac{1}{5}y - \frac{1}{16}y - \frac{1}{20}$

$$\dots \frac{1}{4}y^2 + \frac{11}{80}y - \frac{1}{20}$$

c) #2#  $\left(-3 + \frac{1}{3}x\right) \cdot \left(2 - \frac{1}{2}x\right) = -6 + \frac{3}{2}x + \frac{1}{3}x - \frac{1}{6}x^2$

$$\dots -6 + \frac{13}{6}x - \frac{1}{6}x^2$$

d) #2#  $\left(x + \frac{2}{3}\right) \cdot \left(x - \frac{2}{3}\right) = x^2 - \frac{2}{3}x + \frac{2}{3}x - \frac{4}{9}$

$$\dots x^2 - \frac{4}{9}$$

e) #2#  $\left(\frac{2}{3}x - \frac{1}{2}\right) \cdot \left(\frac{4}{5}x - \frac{1}{4}\right) = \frac{8}{15}x^2 - \frac{1}{6}x - \frac{2}{5}x + \frac{1}{8}$

$$\dots \frac{8}{15}x^2 - \frac{17}{30}x + \frac{1}{8}$$

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f)  $\#2\# \left(a - \frac{1}{3}b\right) \cdot \left(-a - \frac{1}{5}b\right) =$   $= a^2 - \frac{1}{5}ab + \frac{1}{3}ab + \frac{1}{15}b^2$

$$= a^2 + \frac{2}{15}ab + \frac{1}{15}b^2$$

g)  $\#2\# \left(\frac{1}{2}a^2 - 2b^2\right) \cdot \left(\frac{2}{3}a^2 + b^2\right) =$   $\frac{1}{3}a^4 + \frac{1}{3}a^2b^2 - \frac{4}{3}a^2b^2 - 2b^4$

$$\frac{1}{3}a^4 - \frac{5}{6}a^2b^2 - 2b^4$$

h)  $\#2\# \left(\frac{2}{5}a^2 - \frac{1}{3}ab^3\right) \cdot \left(\frac{3}{2}a^2 + \frac{1}{5}ab^3\right) =$   $\frac{3}{5}a^4 + \frac{2}{25}a^3b^3 - \frac{1}{2}a^3b^3 - \frac{1}{15}a^2b^6$

$$\frac{3}{5}a^4 - \frac{21}{50}a^3b^3 - \frac{1}{15}a^2b^6$$

10. #2# Werk uit door toepassing van de uitgebreide distributiviteit en herleid.

Bereken eerst het product van twee factoren en vermenigvuldig het resultaat met de derde factor.

a)  $\#2\# (x+2) \cdot (x+3) \cdot (x-5) =$   $(x^2 + 3x + 2x + 6)(x-5)$   
 $(x^2 + 5x + 6)(x-5)$   
 $x^3 - 5x^2 + 5x^2 - 25x + 6x - 30$   
 $x^3 - 19x - 30$

b)  $\#2\# (x^2 + 1) \cdot (x+1) \cdot (x+3) =$   $(x^3 + x^2 + x + 1)(x+3)$   
 $x^4 + 3x^3 + x^3 + 3x^2 + x^2 + 3x + x + 3$   
 $x^4 + 4x^3 + 4x^2 + 4x + 3$

c)  $\#2\# (2x+1) \cdot (3x-2) \cdot (x-2) =$   $(6x^3 - 4x^2 + 3x - 1)(x-1)$

$$(6x^3 - x^2 - 2)(x-1)$$

$$6x^3 - 19x^2 - x^2 + 2x - 2x + 4$$

$$6x^3 - 13x^2 + 4$$

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d) #2#  $(2a-x) \cdot (3a-x) \cdot (x-a) =$

$$(6a^2 - 10ax + 3ax^2 + x^3)(x-a)$$

$$(6a^2 - 5ax^2 + x^3)(x-a)$$

$$6ax^3 - 6a^3 - 5ax^4 + 5a^2x^3 - ax^5$$

$$11a^2x^3 - 6a^3 - 6ax^4 + x^5$$

e) #2#  $(a^2 + b^2) \cdot (a+b) \cdot (a-b) =$

$$(a^2 + b^2)(a^2 - b^2)$$

$$a^4 - b^4$$

f) #2#  $(x^2 + xy) \cdot (2x-y) \cdot (x+3y) =$

$$(2x^3 - 2x^2y + 2x^2y - 2xy^2)(x+3y)$$

$$(2x^3 + 2x^2y - 2xy^2)(x+3y)$$

$$2x^4 + 6x^3y + 2x^3y + 3x^2y^2 - xy^2 - 3xy^3$$

$$2x^4 + 7x^3y + 2x^2y^2 - 3xy^3$$

## Merkwaardige producten

11. Werk uit d.m.v. de formule van het kwadraat van een tweeterm.

a)  $(x+y)^2 =$  .....  $x^2 + 2xy + y^2$

b)  $(x+1)^2 =$  .....  $x^2 + 2x + 1$

c)  $(a+3)^2 =$  .....  $a^2 + 6a + 9$

d)  $(x-a)^2 =$  .....  $x^2 - 2ax + a^2$

e)  $(x-5)^2 =$  .....  $x^2 - 10x + 25$

f)  $(2+a)^2 =$  .....  $4 + 4a + a^2$

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- g)  $(4x-5)^2 = \dots 16x^2 - 40x + 25$
- h)  $(7y-1)^2 = \dots 49y^2 - 14y + 1$
- i)  $(3x+4y)^2 = \dots 9x^2 + 14xy + 16y^2$
- j)  $(4x+3y)^2 = \dots 16x^2 + 24xy + 9y^2$
- k)  $(5x-2y)^2 = \dots 25x^2 - 20xy + 4y^2$
- l)  $(3x-1)^2 = \dots 9x^2 - 6x + 1$
- m)  $(2x^2+3y)^2 = \dots 4x^4 + 12x^2y + 9y^2$
- n)  $(5x^4-y^3)^2 = \dots 25x^8 - 10x^4y^3 + y^6$
- o)  $(4a^3-3a^2)^2 = \dots 16a^6 - 24a^5 + 9a^4$
- p)  $(6x^2+2x)^2 = \dots 36x^4 + 24x^3 + 4x^2$
- q)  $(5a^5-3a^2)^2 = \dots 15a^{10} - 30a^7 + 9a^4$

## 12. Werk uit d.m.v. de formule van het kwadraat van een tweeterm.

- a)  $(p+q)^2 = \dots p^2 + 2pq + q^2$
- b)  $(-x+y)^2 = \dots x^2 - 2xy + y^2$
- c)  $(-x-y)^2 = \dots x^2 + 2xy + y^2$
- d)  $(a+3)^2 = \dots a^2 + 6a + 9$
- e)  $(7-b)^2 = \dots 49 - 14b + b^2$
- f)  $(3x-1)^2 = \dots 9x^2 - 6x + 1$
- g)  $(a-3b)^2 = \dots a^2 - 6ab + 9b^2$
- h)  $(5x+2y)^2 = \dots 25x^2 + 20xy + 4y^2$

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- i)  $(-4a-3x)^2 = \dots 16a^2 + 24ax + 9x^2$
- j)  $(2ab+7)^2 = \dots 4a^2b^2 + 28ab + 49$
- k)  $(2c^3-5)^2 = \dots 4c^6 - 20c^3 + 25$
- l)  $(3ax-2ay)^2 = \dots 9a^2x^2 - 12axy + 4a^2y^2$
- m)  $(7a^2b+4ab)^2 = \dots 49a^4b^2 + 56a^3b^2 + 16a^2b^2$
- n)  $(2ab-6a^2b)^2 = \dots 4a^2b^2 - 24a^3b^2 + 36a^4b^2$
- o)  $(d^3-2)^2 = \dots d^6 - 4d^3 + 4$
- p)  $(4x^2-9y^3)^2 = \dots 16x^4 - 72x^2y^3 + 81y^6$
- q)  $(1-8b^2)^2 = \dots 1 - 16b^2 + 64b^4$
- r)  $(3x^2-4x^3)^2 = \dots 9x^4 - 24x^5 + 16x^6$
- s)  $(ax-4)^2 = \dots a^2x^2 - 8ax + 16$

**13. #2# Werk uit d.m.v. de formule van het kwadraat van een tweeterm.**

- a) **#2#**  $\left(x+\frac{1}{4}\right)^2 = \dots x^2 + \frac{1}{2}x + \frac{1}{16}$
- b) **#2#**  $\left(x+\frac{1}{2}\right)^2 = \dots x^2 + x + \frac{1}{4}$
- c) **#2#**  $\left(x-\frac{1}{3}\right)^2 = \dots x^2 - \frac{2}{3}x + \frac{1}{9}$
- d) **#2#**  $\left(\frac{2}{3}+a\right)^2 = \dots \frac{4}{9} + \frac{4}{3}a + a^2$
- e) **#2#**  $\left(\frac{1}{5}-b\right)^2 = \dots \frac{1}{25} - \frac{2}{5}b + b^2$

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f)  $\#2\# \left( \frac{3}{5}a + \frac{2}{9} \right)^2 = \frac{9}{25}a^2 + \frac{4}{15}ab + \frac{4}{81}b^2$

g)  $\#2\# \left( \frac{2}{3}x - \frac{4}{5} \right)^2 = \frac{4}{9}x^2 - \frac{16}{15}x + \frac{16}{25}$

h)  $\#2\# \left( \frac{1}{3} - \frac{3}{4}x \right)^2 = \frac{1}{9}x^2 - \frac{1}{2}x + \frac{9}{16}$

i)  $\#2\# \left( \frac{3}{4}x^2 + \frac{1}{4} \right)^2 = \frac{9}{16}x^4 + \frac{3}{8}x^2 + \frac{1}{16}$

j)  $\#2\# \left( \frac{1}{2}x^3 - \frac{1}{10}x^2 \right)^2 = \frac{1}{4}x^6 - \frac{1}{10}x^5 + \frac{1}{100}x^4$

k)  $\#2\# \left( \frac{2}{3}x^2 - \frac{3}{4}y^3 \right)^2 = \frac{4}{9}x^4 - \frac{1}{2}x^2y^3 + \frac{9}{16}y^6$

l)  $\#2\# \left( 5a + \frac{1}{5}b \right)^2 = 25a^2 + 1ab + \frac{1}{25}b^2$

**14. Werk uit door middel van de formule van het kwadraat van een tweeterm.**

a)  $\#2\# \left( \frac{2}{5}a + \frac{1}{4}b \right)^2 = \frac{4}{25}a^2 + \frac{1}{5}ab + \frac{1}{16}b^2$

b)  $\#2\# \left( -\frac{x}{2} + a \right)^2 = \frac{x^2}{4} - ax + a^2$

c)  $\#2\# \left( -2x + \frac{4}{3}y \right)^2 = 4x^2 - \frac{16}{3}xy + \frac{16}{9}y^2$

d)  $\#2\# \left( -\frac{3}{4}a - \frac{2}{5}b \right)^2 = \frac{9}{16}a^2 + \frac{3}{5}ab + \frac{4}{25}b^2$

e)  $\#2\# \left( -\frac{3}{7}x^2 + 8x^4 \right)^2 = \frac{9}{49}x^4 - \frac{48}{7}x^6 + 64x^8$

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f)  $\#2\# \left(-4x^2y + \frac{1}{5}y^2\right)^2 = \dots 16x^4y^2 - \frac{8}{5}x^2y^3 + \frac{1}{25}y^4 \dots$

g)  $\#2\# \left(-\frac{7}{4}a^4b - \frac{4}{3}a^3b\right)^2 = \dots \frac{49}{16}a^8b^2 + \frac{14}{3}a^7b^2 + \frac{16}{9}a^6b^2 \dots$

h)  $\#2\# \left(\frac{4}{3}a^2 + \frac{3}{2}b^2\right)^2 = \dots \frac{16}{9}a^4 + 4a^2b^2 + \frac{9}{4}b^4 \dots$

i)  $\#2\# \left(\frac{2}{3}xy - \frac{1}{4}x^2\right)^2 = \dots \frac{4}{9}x^2y^2 - \frac{1}{3}x^3y + \frac{1}{16}x^4 \dots$

j)  $\#2\# \left(-6x^2 - \frac{3}{2}y^2\right)^2 = \dots 36x^4 + 18x^2y^2 + \frac{9}{4}y^4 \dots$

k)  $\#2\# \left(\frac{4}{5}xy - \frac{1}{2}x^2y^2\right)^2 = \dots \frac{16}{25}x^2y^2 - \frac{4}{5}x^3y^3 + \frac{1}{4}x^4y^4 \dots$

l)  $\#2\# \left(-\frac{3}{7}a^4b + a^3b^2\right)^2 = \dots \frac{9}{49}a^8b^2 - \frac{6}{7}a^7b^3 + a^6b^4 \dots$

m)  $\#2\# \left(-\frac{1}{5}x^4y - \frac{3}{2}x^6\right)^2 = \dots \frac{1}{25}x^8y^2 + \frac{3}{5}x^{10}y + \frac{9}{4}x^{12} \dots$

n)  $\#2\# \left(\frac{3}{5}x^3y^2 - \frac{2}{5}xy^4\right)^2 = \dots \frac{9}{25}x^6y^4 - \frac{12}{25}x^4y^6 + \frac{4}{25}x^2y^8 \dots$

15. **#2# Ik denk aan een getal x waarvoor geldt :**

$$(2x+1)^2 = (2x-5)^2 \text{ en toch is } +1 \neq -5.$$

Aan welk getal denk ik ?

$$\dots 4x^2 + 4x + 1 = 4x^2 - 20x + 25 \dots$$

$$\dots 4x + 20x = 25 - 1 \dots$$

$$\dots 24x = 24 \dots$$

$$\dots x = 1 \dots$$

$$\dots (2 \cdot 1 + 1) = 3 \dots 2 \cdot 1 - 5 = -3 \dots$$

$$3^2 = (-3)^2 = 9$$

# oefeningen

## 16. #2# Vervolledig volgende gelijkheden.

a) #2#  $x^2 + \dots x + \dots = (\dots x + 3)^2$

b) #2#  $16x^2 + \dots xy + \dots y^2 = (\dots x + 3y)^2$

c) #2#  $a^2 - 4ab + \dots b^2 = (\dots a - \dots b)^2$

d) #2#  $\frac{1}{4}x^2 - 4xy + \dots y^2 = (\dots x - \dots y)^2$

e) #2#  $(3a + 4a^2)^2 = 9a^2 + \dots + 16a^4$

f) #2#  $(ab^2 + \frac{1}{4}b^4 - ab + \dots)^2 = \dots b^4 - ab + \dots$

g) #2#  $(x^2y^3 - \dots)^2 = x^4y^6 - \dots + a^4$

h) #2#  $\left(\frac{1}{3}a - \dots\right)^2 = \frac{1}{9}a^2 - 2ab + \dots$

## 17. #2# Welke term moet je bij volgende uitdrukkingen optellen opdat ze het kwadraat van een som zouden worden.

a) #2#  $a^2 + b^2$  ..... lab .....

b) #2#  $x^2 + 4y^2$  ..... 4xy .....

c) #2#  $1 + 9x^2$  ..... 6x .....

d) #2#  $16 + 25x^2$  ..... 190x .....

e) #2#  $a^2 + 2ab$  ..... b<sup>2</sup> .....

f) #2#  $b^2 - 2bx$  ..... x .....

g) #2#  $4xy + y^2$  ..... 4x<sup>2</sup> .....

h) #2#  $m^2 + 4mp$  ..... 4p<sup>2</sup> .....

i) #2#  $16x^2 - 24xy$  ..... 9y<sup>2</sup> .....

# oefeningen

j)  $\#2\# \frac{x^2}{4} + \frac{y^2}{9}$  .....  $\frac{2xy}{3}$

18. #2# Vul de ontbrekende getallen in en ontcijfer het sleutelwoord. (1=a, ..., 26=z)

a)  $\#2\# \left( \frac{4a^2}{3} - \frac{3b^2}{4} \right)^2 = \frac{16a^4}{?g} - \frac{12ab^2}{16} + \frac{9b^4}{?16}$

b)  $\#2\# \left( 2c - \frac{9}{2}y^2 \right)^2 = \frac{4c^2}{4} - \frac{18cy^2}{4} + \frac{81y^4}{4}$

c)  $\#2\# \left( -\frac{2}{3} - \frac{4}{5}y \right)^2 = \frac{4}{?9} + \frac{16}{15}y + \frac{16}{?15}y^2$

d)  $\#2\# (x - ?z)^2 = x^2 - ?z + 9$

e)  $\#2\# \left( \frac{a}{2} - \frac{b}{3} \right)^2 = ..... - ..... + \frac{?}{?g}$

f)  $\#2\# (?y + 2)^2 = ..... + 12y + .....$

g)  $\#2\# \left( -\frac{5}{2} - \frac{3}{?l}x \right)^2 = 25a^2 - 15ax + \frac{?}{4}x^2$

h)  $\#2\# \left( \frac{x}{4} + \frac{y}{2} \right)^2 = ..... + \frac{?}{?l}xy + .....$

i)  $\#2\# (..... - ?y)^2 = ..... - 200cy + 400y^2$

## SLEUTELWOORD

a	b	c	d	e	f	g	h	i
P	R	O	F	I	C	T	a	T

# oefeningen

19. Welke tweeterm(en) is (zijn) een toegevoegde tweeterm van ...

a)  $2p - q$

- $-2p - q$
- $-q + 2p$
- $2p + q$
- $q - 2p$

b)  $x^2 - 3y$

- $-3y - x^2$
- $-x^2 + 3y$
- $3y - x^2$
- $x^2 + 3y$

c)  $a^3 - 5b$

- $a^3 + 5b$
- $-5b - a^3$
- $-a^3 - 5b$
- $5b + a^3$

20. Noteer alle mogelijke toegevoegde tweetermen van ...

a)  $-3x^2 - 5p$

$(-3x^2 + 5p)$ ;  $(3x^2 - 5p)$

b)  $-5x^2 + 3y$

$(5x^2 + 3y)$ ;  $(-5x^2 - 3y)$

c) #2#  $\frac{y}{2} - \frac{a}{4}$

$\left(\frac{y}{2} + \frac{a}{4}\right)$ ;  $\left(-\frac{y}{2} - \frac{a}{4}\right)$

21. Maak het product van de volgende toegevoegde tweetermen.

a)  $(x + y) \bullet (x - y) =$  .....  $x^2 - y^2$  .....

b)  $(x + a) \bullet (x - a) =$  .....  $x^2 - a^2$  .....

c)  $(x + 3) \bullet (x - 3) =$  .....  $x^2 - 9$  .....

# oefeningen

- d)  $(1+x) \cdot (1-x) = \dots 1 - x^2$
- e)  $(3+x) \cdot (3-x) = \dots 9 - x^2$
- f)  $(2x+3) \cdot (2x-3) = \dots 4x^2 - 9$
- g)  $(4x+5) \cdot (4x-5) = \dots 16x^2 - 25$
- h)  $(x^2 + a) \cdot (x^2 - a) = \dots x^4 - a^2$
- i)  $(2x^2 - 1) \cdot (2x^2 + 1) = \dots 4x^4 - 1$
- j)  $(x^3 + 2) \cdot (x^3 - 2) = \dots x^6 - 4$
- k)  $(4a^4 + 1) \cdot (4a^4 - 1) = \dots 16a^8 - 1$
- l)  $(ab - 3) \cdot (ab + 3) = \dots a^2b^2 - 9$
- m)  $(x^2 + a) \cdot (x^2 - a) = \dots x^4 - a^2$
- n)  $(5x^2y^3 - 7) \cdot (5x^2y^3 + 7) = \dots 25x^4y^6 - 49$
- o)  $(-x + y) \cdot (x + y) = \dots y^2 - x^2$
- p)  $(3x^2 - 2y) \cdot (-3x^2 - 2y) = \dots 4y^2 - 9x^4$
- q)  $(-3a - 4) \cdot (-3a + 4) = \dots 9a^2 - 16$
- r)  $(-a^2 + 1) \cdot (-a^2 - 1) = \dots a^4 - 1$
- s)  $(x^5 + 1) \cdot (1 - x^5) = \dots 1 - x^{10}$
- t)  $(-1 - 4x) \cdot (1 - 4x) = \dots 16x^2 - 1$

**22. Maak het product van de volgende toegevoegde tweetermen.**

- a)  $(x - y) \cdot (x + y) = \dots x^2 - y^2$
- b)  $(-x - y) \cdot (x - y) = \dots y^2 - x^2$
- c)  $(-x + y) \cdot (x + y) = \dots y^2 - x^2$
- d)  $(x + 5) \cdot (x - 5) = \dots x^2 - 25$

# oefeningen

- e)  $(2a-5) \cdot (2a+5) = \dots 4a^2 - 25$
- f)  $(-a+7) \cdot (-a-7) = \dots a^2 - 49$
- g)  $(3x+5y) \cdot (3x-5y) = \dots 9x^2 - 25y^2$
- h)  $(y-2x) \cdot (2x+y) = \dots y^2 - 4x^2$
- i)  $(2ab-5a^2) \cdot (2ab+5a^2) = \dots 4a^2b^2 - 25a^4$
- j)  $(x^2-5) \cdot (x^2+5) = \dots x^4 - 25$
- k)  $(3x^2-4y^2) \cdot (4y^2+3x^2) = \dots 9x^4 - 16y^4$
- l)  $(a^3-b^3) \cdot (b^3+a^3) = \dots a^6 - b^6$
- m)  $(-2a^2b-5) \cdot (5-2a^2b) = \dots 4a^4b^2 - 25$
- n)  $(4a^2+3b) \cdot (-4a^2+3b) = \dots 9b^2 - 16a^4$
- o)  $(2x^2y+3) \cdot (-2x^2y+3) = \dots 9 - 4x^4y^2$
- p)  $(-7ab+5) \cdot (-5-7ab) = \dots 49ab^2 - 25$
- q)  $(a^2+2b) \cdot (a^2-2b) = \dots a^4 - 4b^2$
- r)  $(a^3-2) \cdot (-2-a^3) = \dots 4 - a^6$
- s)  $(ab+a^2) \cdot (-a^2+ab) = \dots a^4b^2 - a^4$
- t)  $(-3ab+1) \cdot (-1-3ab) = \dots 9a^2b^2 - 1$

**23. #2# Maak het product van de volgende toegevoegde tweetermen.**

- a) **#2#**  $\left(x+\frac{1}{2}\right) \cdot \left(x-\frac{1}{2}\right) = \dots x^2 - \frac{1}{4}$
- b) **#2#**  $\left(\frac{1}{5}x+3\right) \cdot \left(\frac{1}{5}x-3\right) = \dots \frac{1}{25}x^2 - 9$
- c) **#2#**  $\left(\frac{3}{4}x-\frac{2}{5}y\right) \cdot \left(\frac{3}{4}x+\frac{2}{5}y\right) = \dots \frac{9}{16}x^2 - \frac{4}{25}y^2$

# oefeningen

d) **#2#**  $\left(\frac{1}{5}x^2 + y\right) \cdot \left(\frac{1}{5}x^2 - y\right) = \underline{\underline{\frac{1}{25}x^4 - y^2}}$

e) **#2#**  $\left(-a + \frac{1}{4}\right) \cdot \left(-a - \frac{1}{4}\right) = \underline{\underline{a^2 - \frac{1}{16}}}$

f) **#2#**  $\left(\frac{1}{2} + x^2\right) \cdot \left(x^2 - \frac{1}{2}\right) = \underline{\underline{x^4 - \frac{1}{4}}}$

g) **#2#**  $\left(\frac{1}{10} - x\right) \cdot \left(-x - \frac{1}{10}\right) = \underline{\underline{x^2 - \frac{1}{100}}}$

h) **#2#**  $\left(-\frac{1}{5}x + y\right) \cdot \left(-y - \frac{1}{5}x\right) = \underline{\underline{\frac{1}{25}x^2 - y^2}}$

i) **#2#**  $\left(x + \frac{1}{4}\right) \cdot \left(-\frac{1}{4} + x\right) = \underline{\underline{x^2 - \frac{1}{16}}}$

j) **#2#**  $\left(\frac{2}{3}a - \frac{4}{5}b\right) \cdot \left(-\frac{4}{5}b - \frac{2}{3}a\right) = \underline{\underline{-\frac{16}{25}b^2 - \frac{4}{9}a^2}}$

k) **#2#**  $\left(\frac{1}{5}x^2 + \frac{1}{3}y^4\right) \cdot \left(\frac{1}{5}x^2 - \frac{1}{3}y^4\right) = \underline{\underline{\frac{1}{25}x^4 - \frac{1}{9}y^8}}$

l) **#2#**  $\left(-a^2b + \frac{1}{2}\right) \cdot \left(-a^2b - \frac{1}{2}\right) = \underline{\underline{a^4b^2 - \frac{1}{4}}}$

m) **#2#**  $\left(\frac{1}{7}x^3 + \frac{3}{10}y^2\right) \cdot \left(\frac{1}{7}x^3 - \frac{3}{10}y^2\right) = \underline{\underline{\frac{1}{49}x^6 - \frac{9}{100}y^4}}$

**24. #2# Maak het product van de volgende toegevoegde tweetermenen.**

a) **#2#**  $\left(-\frac{3}{4}a^3 - \frac{2}{5}b\right) \cdot \left(\frac{3}{4}a^3 - \frac{2}{5}b\right) = \underline{\underline{-\frac{9}{16}b^2 - \frac{9}{16}a^6}}$

b) **#2#**  $\left(-\frac{3}{4}x^4 + \frac{2}{3}\right) \cdot \left(-\frac{3}{4}x^4 - \frac{2}{3}\right) = \underline{\underline{\frac{9}{16}x^8 - \frac{4}{9}}}$

c) **#2#**  $\left(a^2 - \frac{1}{2}b\right) \cdot \left(\frac{1}{2}b + a^2\right) = \underline{\underline{a^4 - \frac{1}{4}b^2}}$

# oefeningen

- d) #2#  $\left(\frac{1}{5}a - \frac{3}{10}b\right) \cdot \left(\frac{1}{5}a + \frac{3}{10}b\right) =$  .....  $\frac{1}{25}a^2 - \frac{9}{100}b^2$
- e) #2#  $\left(2a - \frac{1}{4}b\right) \cdot \left(2a + \frac{1}{4}b\right) =$  .....  $4a^2 - \frac{1}{16}b^2$
- f) #2#  $\left(\frac{3}{5}a + \frac{2}{3}b\right) \cdot \left(\frac{3}{5}a - \frac{2}{3}b\right) =$  .....  $\frac{9}{25}a^2 - \frac{4}{9}b^2$
- g) #2#  $\left(\frac{2}{5}x^2 - 3y^2\right) \cdot \left(-3y^2 - \frac{2}{5}x^2\right) =$  .....  $9y^4 - \frac{4}{25}x^4$
- h) #2#  $\left(\frac{2}{3}x - \frac{4}{5}y\right) \cdot \left(-\frac{2}{3}x - \frac{4}{5}y\right) =$  .....  $\frac{16}{25}y^2 - \frac{4}{9}x^2$
- i) #2#  $\left(a - \frac{2}{3}\right) \cdot \left(a + \frac{2}{3}\right) =$  .....  $a^2 - \frac{4}{9}$
- j) #2#  $\left(\frac{1}{4}a^2 - 5\right) \cdot \left(-5 - \frac{1}{4}a^2\right) =$  .....  $25 - \frac{1}{16}a^4$
- k) #2#  $\left(x + \frac{1}{4}a\right) \cdot \left(\frac{1}{4}a - x\right) =$  .....  $\frac{1}{16}a^2 - x^2$
- l) #2#  $\left(\frac{5}{2}ab + 6\right) \cdot \left(-6 + \frac{5}{2}ab\right) =$  .....  $\frac{25}{4}a^2b^2 - 36$
- m) #2#  $\left(\frac{1}{6}a^2b^3 - \frac{3}{2}ab^4\right) \cdot \left(-\frac{1}{6}a^2b^3 - \frac{3}{2}ab^4\right) =$  .....  $\frac{9}{4}a^4b^8 - \frac{1}{36}a^4b^8$

## 25. Werk uit m.b.v. de formules van merkwaardige producten.

- a)  $(3x - 2)^2 =$  .....  $9x^2 - 12x + 4$
- b)  $(3a^3 - 5b) \cdot (-5b - 3a^3) =$  .....  $25b^2 - 9a^6$
- c) #2#  $\left(\frac{1}{2}a - b^4\right)^2 =$  .....  $\frac{1}{4}a^2 - ab^4 + b^8$
- d)  $(3x^3 - 2x^2)^2 =$  .....  $9x^6 - 12x^5 + 4x^4$

# oefeningen

e) **#2#**  $\left(\frac{1}{2} - ab^2\right) \cdot \left(-\frac{1}{2} - ab^2\right) = \dots a^2 b^4 - \frac{1}{4}$

f) **#2#**  $\left(\frac{2}{3}x^2y - 4xy\right)^2 = \dots \frac{4}{9}x^4y^2 - \frac{16}{3}x^3y^2 + 16x^2y^2$

g)  $(2c - 3b^4) \cdot (-3b^4 - 2c) = \dots -9b^8 - 4c^2$

h) **#2#**  $\left(\frac{x^3}{2} - 3\right) \cdot \left(-3 - \frac{x^3}{2}\right) = \dots 9 - \frac{3x^6}{4}$

i)  $(ab^2 - a^2b)^2 = \dots a^2 b^4 - 2a^3 b^3 + a^4 b^2$

j) **#2#**  $\left(\frac{2}{x^3} - 1\right) \cdot \left(-1 - \frac{2}{x^3}\right) = \dots 1 - \frac{4}{x^6}$

**26. #2# Werk uit m.b.v. de formules van merkwaardige producten.**

a) **#2#**  $(a^n + 2)^2 = \dots a^{2n} + 4a^n + 4$

b) **#2#**  $(a^n - 3) \cdot (a^n + 3) = \dots a^{2n} - 9$

c) **#2#**  $(x^{p+1} + 1)^2 = \dots x^{2p+2} + 2x^{p+1} + 1$

d) **#2#**  $(x^p + x^q) \cdot (x^p - x^q) = \dots x^{2p} - x^{2q}$

e) **#2#**  $(a^n b - ab^n)^2 = \dots a^{2n} b^2 - 2a^{n+1} b^{n+1} + a^2 b^{2n}$

f) **#2#**  $(a^{2n} - b) \cdot (b + a^{2n}) = \dots a^{4n} - b^2$

g) **#2#**  $(a^n b^p - a^p b)^2 = \dots a^{2n} b^{2p} - 2a^{n+p} b^{p+1} + a^{2p} b^2$

h) **#2#**  $(-a^n - 2b^n) \cdot (-2b^n + a^n) = \dots 4b^{2n} - a^{2n}$

i) **#2#**  $(5x^{m+1} + 3y)^2 = \dots 25x^{2m+2} + 30x^{m+1} y + 9y^2$

j) **#2#**  $(3a^{m+1} + y^2) \cdot (3a^{m+1} - y^2) = \dots 9a^{2m+2} - y^4$

k) **#2#**  $(x^{2m+1} - y^{n-2})^2 = \dots x^{4m+2} - 2x^{2m+1} y^{n-2} + y^{2n-4}$

# oefeningen

l) #2#  $\left(a^m - \frac{1}{2}\right) \cdot \left(-\frac{1}{2} - a^m\right) = \dots \frac{1}{4} \dots a^{2m}$

m) #2#  $\left(2a^m b^n - \frac{1}{2}\right)^2 = \dots 4a^{2m} b^{2n} - 2a^m b^n + \frac{1}{4}$

n) #2#  $\left(\frac{1}{3}a^{2m} + \frac{1}{3}b^n\right)^2 = \dots \frac{1}{9}a^{4m} + \frac{2}{3}a^{2m}b^n + \frac{1}{9}b^{2n}$

o) #2#  $(4a^{m-1} + b) \cdot (4a^{m-1} - b) = \dots 16a^{4m-2} - b^2$

p) #2#  $\left(x^n - \frac{3y^n}{8}\right) \cdot \left(-\frac{3y^n}{8} - x^n\right) = \dots \frac{9y^{4n}}{64} - x^{2n}$

**27. #2# Werk zo ver mogelijk uit door toepassing van de formules van de merkwaardige producten.**

a) #2#  $(x-1) \cdot (x+1) + (x-1)^2 =$   
 $= x^2 - 1 + x^2 - 2x + 1$   
 $= 2x^2 - 2x$

b) #2#  $(3x-2) \cdot (3x+2) - (3x-2)^2 =$   
 $= 9x^2 - 4 - 9x^2 + 12x - 4$   
 $= 12x - 8$

c) #2#  $(x+5)^2 - (x-5)^2 =$   
 $= x^2 + 10x + 25 - x^2 + 10x - 25$   
 $= 20x$

# oefeningen

d) #2#  $(a-4)^2 - (a-4) \cdot (a+4) =$

$$\begin{aligned} &= a^2 - 8a + 16 - a^2 + 16 \\ &= -8a + 32 \end{aligned}$$

e) #2#  $(x-3)^2 - (x+3)^2 =$

$$\begin{aligned} &= x^2 - 6x + 9 - x^2 - 6x - 9 \\ &= -12x \end{aligned}$$

f) #2#  $((x-3) \cdot (x+3))^2 =$

$$= (x^2 - 9)^2 = x^4 - 18x^2 + 81$$

g) #2#  $(x+6)^2 - (x+6) \cdot (x-6) =$

$$\begin{aligned} &= x^2 + 12x + 36 - x^2 + 36 \\ &= 12x + 72 \end{aligned}$$

h) #2#  $(2x-1)^2 - (2x-1) \cdot (2x+1) - (2x+1)^2 =$

$$\begin{aligned} &= 4x^2 - 4x + 1 - 4x^2 + 1 - 4x^2 - 4x - 1 \\ &= -4x^2 - 8x + 1 \end{aligned}$$

# oefeningen

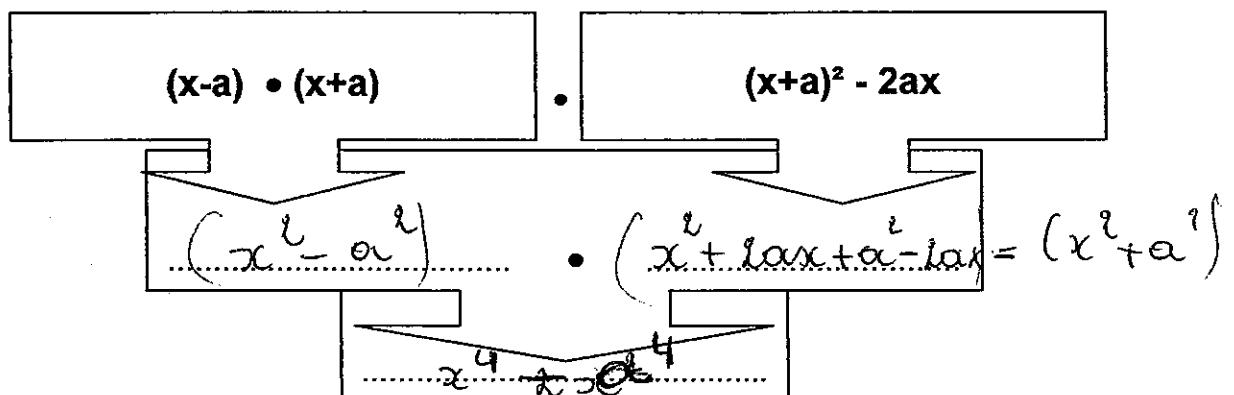
i) #2#  $(2x-3)^2 \cdot (2x+3)^2 =$

$$\begin{aligned}
 &= (4x^2 - 12x + 9) \cdot (4x^2 + 12x + 9) \\
 &= (4x^2 + 9)^2 - (12x)^2 \\
 &= 16x^4 + 72x^2 + 81 - 144x^4 = 16x^4 - 72x^2 + 81
 \end{aligned}$$

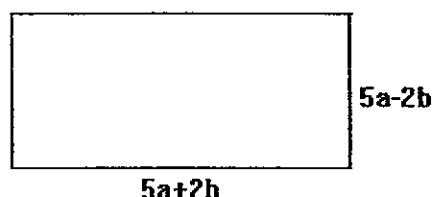
j) #2#  $\left(\frac{4}{9}x^2 + \frac{1}{25}\right) \cdot \left(\frac{2}{3}x - \frac{1}{5}\right) \cdot \left(\frac{2}{3}x + \frac{1}{5}\right) =$

$$\begin{aligned}
 &= \left(\frac{4}{9}x^2 + \frac{1}{25}\right) \left(\frac{4}{9}x^2 - \frac{1}{25}\right) \\
 &= \frac{16}{81}x^4 - \frac{1}{625}
 \end{aligned}$$

27. Vul onderstaand schema in.

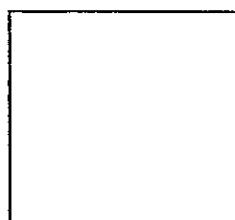


28. Bepaal de oppervlakte van onderstaande figuren.



$$\begin{aligned}
 \text{opp} &= L \cdot B \\
 &= (5a-2b)(5a+2b) \\
 &= 25a^2 - 4b^2
 \end{aligned}$$

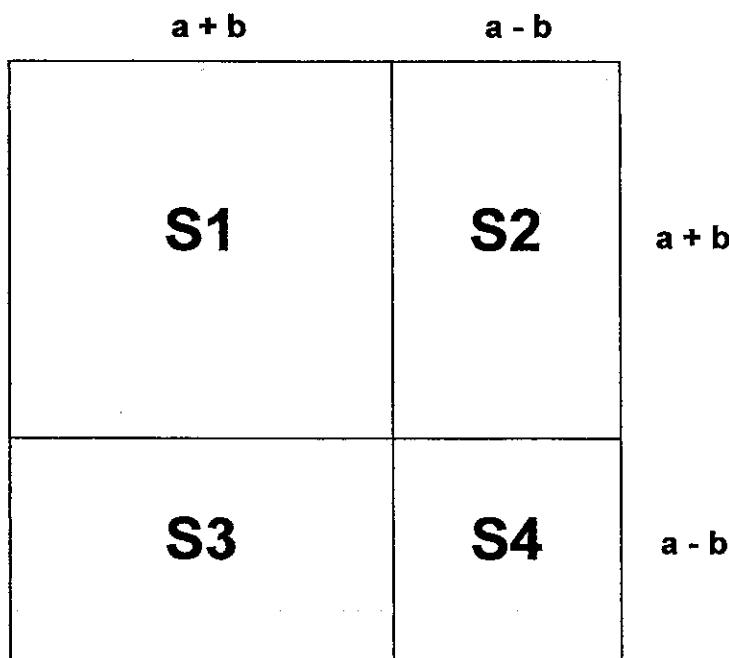
# oefeningen



$$2x+3y$$

$$\begin{aligned} \text{opp}_n &= 2 \cdot z \\ &= (kx + 3y)^2 \\ &= 4x^2 + 12xy + 9y^2 \end{aligned}$$

20. Bekijk aandachtig onderstaande figuur.



a) Bereken aan de hand van de gegevens...

➤ oppervlakte S1 :

$$(a+b)^2 = a^2 + lab + b^2$$

➤ oppervlakte S2 :

$$(a-b)(a+b) = a^2 - b^2$$

# oefeningen

➤ oppervlakte S3 :

$$(a+b)(a-b) = a^2 - b^2$$

.....

➤ oppervlakte S4 :

$$(a-b)(a-b) = a^2 - 2ab + b^2$$

.....

b) Toon aan :  $S1 + S2 + S3 + S4 = 4a^2$

$$(a+b+a-b)(a+b+a-b)$$

$$= 2a \cdot 2a = 4a^2$$

.....

30. #2# Werk zo ver mogelijk uit door toepassing van de formules van de merkwaardige producten.

a) #2#  $(x-1) \cdot (x+1) \cdot (x^2+1) =$

$$= (x^2-1)(x^2+1)$$

$$= x^4 - 1$$

.....

b) #2#  $(x+3) \cdot (x-3) \cdot (x^2+9) =$

$$= (x^2-9)(x^2+9)$$

$$= x^4 - 81$$

.....

# oefeningen

c) #2#  $(2a-3) \cdot (2a+3) \cdot (4a^2+9) =$

$$(4a^2 - 9) (4a^2 + 9)$$

$$16a^4 - 81$$

d) #2#  $(x^2 + y^2) \cdot (x+y) \cdot (x-y) =$

$$(x^2 + y^2)(x^2 - y^2)$$

$$x^4 - y^4$$

e) #2#  $(3x+2) \cdot (9x^2 + 4) \cdot (3x-2) =$

$$(9x^2 - 4) (9x^2 + 4)$$

$$81x^4 - 16$$

f) #2#  $(x^3 - a^3) \cdot (x^6 + a^6) \cdot (x^3 + a^3) =$

$$(x^6 - a^6)(x^6 + a^6)$$

$$x^{12} - a^{12}$$

g) #2#  $(x^2 + 1) \cdot (x^4 + 1) \cdot (x^2 - 1) =$

$$(x^4 - 1)(x^4 + 1)$$

$$x^8 - 1$$

# oefeningen

h) #2#  $(-x+2) \cdot (-x-2) \cdot (4+x^2) =$

$\dots (x^2 - 4) \cdot (4 + x^2)$

$\dots x^4 - 16$

i) #2#  $(-1-3x) \cdot (1-3x) \cdot (9x^2-1) =$

$\dots (9x^2 - 1) \cdot (9x^2 - 1)$

$\dots 81x^4 - 18x^2 + 1$

j) #2#  $(a-b) \cdot (a^4 + b^4) \cdot (a+b) \cdot (a^2 + b^2) =$

$\dots (a^2 - b^2) \cdot (a^4 + b^4) \cdot (a^2 + b^2)$

$\dots (a^4 - b^4) \cdot (a^4 + b^4)$

$\dots a^8 - b^8$