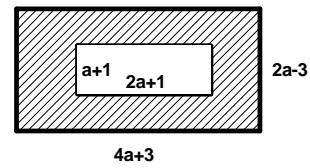
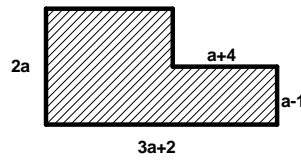
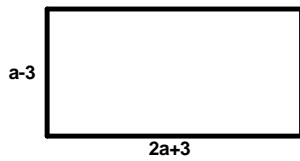


Multiplikation von Summen

Stelle den Flächeninhalt der Figur durch einen Term $T(a)$ dar : _



Multipliziere die Summen und vereinfache

1. a) $(a + 2b)(2a + b)$ b) $(a - 2b)(2a + b)$ c) $(a + 2b)(2a - b)$
 d) $(a - 2b)(2a - b)$ e) $(-a + 2b)(2a + b)$ f) $(a - 2b)(-2a - b)$

2. a) $(2x - 5y)(4x + 3y)$ b) $(2x + 3)(-4x + 5)$ c) $(3x + 1)(2x - x^2)$
 d) $(1,5a + 0,5b)(0,4b - 0,6a)$ e) $\left(\frac{2}{3}a - \frac{4}{5}b\right)\left(\frac{3}{2}a - \frac{3}{5}b\right)$ f) $\left(\frac{1}{3}x - 0,2\right)\left(-\frac{2}{3}x - 0,4\right)$

3. a) $(-2ab + 3a^2)(3a + 2b)$ b) $(-5x^2 + 2x)(3x + 4)$

4. a) $(a + 2)^2$ b) $(2a + b)^2$ c) $(2x + 3)^2$ d) $(3x - 2)^2$ e) $(4a - 5b)^2$

6. a) $(a - 3)(a + 3)$ b) $(3a - 2)(3a + 2)$ c) $(5xy - 3)(5xy + 3)$ d) $(x^2 + 1)(x^2 - 1)$

7. a) $(10a + 5b - 2)(4a - b)$ b) $\left(-2x^2 - x + \frac{1}{2}\right)(x + 2)$

8. a) $2 \cdot (4a - 5b)(5a + 2b)$ b) $-3a \cdot (2a - 3)(4a + 3)$

9. a) $(a - 1)(a + 2)(a - 3)$ b) $(2x^2 - 1)(x - 2)(x + 1)$

10. Multipliziere jeweils die Summen und vereinfache

a) $(2a - 3)(5a - 7) - (a + 2)(5a - 8)$

b) $(-2a + 3b)(-5a + 4b) - (0,5a - 3b)(-a - 8b)$

c) $(x^2 - 1)(2x - 1) + (2x + 3)(x - 4)$ d) $(3x - 1)(2x + 1) - \left(\frac{1}{2}x - 2\right)\left(2x - \frac{1}{2}\right) - (x - 3)^2$

Lösungen

Flächen

$$A_1 = 2a^2 - 3a - 9 \quad A_2 = 5a^2 - a - 4 \quad A_3 = 6a^2 - 9a - 10$$

1. a) $(a + 2b)(2a + b) = 2a^2 + 5ab + 2b^2$

b) $(a - 2b)(2a + b) = 2a^2 - 3ab - 2b^2$

c) $(a + 2b)(2a - b) = 2a^2 + 3ab - 2b^2$

d) $(a - 2b)(2a - b) = a^2 - 5ab + 2b^2$

e) $(-a + 2b)(2a + b) = -2a^2 + 3ab + 2b^2$

f) $(a - 2b)(-2a - b) = -2a^2 + 3ab + 2b^2$

2. a) $(2x - 5y)(4x + 3y) = 4x^2 - 14xy - 15y^2$

b) $(2x + 3)(-4x + 5) = -8x^2 - 2x + 15$

c) $(3x + 1)(2x - x^2) = -3x^3 + 5x^2 + 2x$

d) $(1,5a + 0,5b)(0,4b - 0,6a) = -0,9a^2 + 0,3ab + 0,2b^2$

e) $\left(\frac{2}{3}a - \frac{4}{5}b\right)\left(\frac{3}{2}a - \frac{3}{5}b\right) = a^2 - \frac{8}{5}ab + \frac{12}{25}b^2$

f) $\left(\frac{1}{3}x - 0,2\right)\left(-\frac{2}{3}x - 0,4\right) = -\frac{2}{9}x^2 + 0,08$

$$3. a) (-2ab + 3a^2)(3a + 2b) = 9a^3 - 4ab^2$$

$$b) (-5x^2 + 2x)(3x + 4) = -15x^3 - 14x^2 + 8x$$

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

$$b) (2a + b)^2 = 4a^2 + 4ab + b^2$$

$$c) (2x + 3)^2 = 4x^2 + 12x + 9$$

$$d) (3x - 2)^2 = 9x^2 - 12x + 4$$

$$e) (4a - 5b)^2 = 16a^2 - 40ab + 25b^2$$

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

$$b) (3a - 2)(3a + 2) = 9a^2 - 4$$

$$c) (5xy - 3)(5xy + 3) = 25x^2y^2 - 9$$

$$d) (x^2 + 1)(x^2 - 1) = x^4 - 1$$

$$7. a) (10a + 5b - 2)(4a - b) = 40a^2 - 5b^2 + 10ab - 8a + 2b$$

$$b) (-2x^2 - x + \frac{1}{2})(x + 2) = -2x^2 - 5x^2 - \frac{3}{2}x + 1$$

$$8. a) 2 \cdot (4a - 5b)(5a + 2b) = 40a^2 - 20b^2 - 34ab$$

$$b) -3a \cdot (2a - 3)(4a + 3) = -24a^3 + 18a^2 + 27a$$

$$9. a) (a - 1)(a + 2)(a - 3) = a^3 - 2a^2 - 5a + 6$$

$$b) (2x^2 - 1)(x - 2)(x + 1) = 2x^4 + 2x^3 - 5x^2 - x + 2$$

$$10. a) (2a - 3)(5a - 7) - (a + 2)(5a - 8) = 5a^2 - 31a + 37$$

$$\text{b) } (-2a + 3b)(-5a + 4b) - (0,5a - 3b)(-a - 8b) = -10,5a^2 - 22ab - 12b^2$$

$$\text{c) } (x^2 - 1)(2x - 1) + (2x + 3)(x - 4) = 2x^3 - 3x^2 - 7x - 11$$

$$\text{d) } (3x - 1)(2x + 1) - \left(\frac{1}{2}x - 2\right)\left(2x - \frac{1}{2}\right) - (x - 3)^2 = 4x^2 + 11,25x - 11$$
