

<b>Summen multiplizieren – LÖSUNGEN</b>	<b>M7</b>
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**Aufgabe 1**

a)  $(1 + x)(2 + y) = 2 + y + 2x + xy$

b)  $(2 + x)(y + 1) = 2y + 2 + xy + x$

c)  $(x + 3)(y + 4) = xy + 4x + 3y + 12$

d)  $(2x + 3)(y + 2) = 2xy + 4x + 3y + 6$

e)  $(4x + 1)(3y + 1) = 12xy + 4x + 3y + 1$

f)  $(4a + 5)(a + 3) = 4a^2 + 12a + 5a + 15 = 4a^2 + 17a + 15$

**Aufgabe 2**

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

b)  $(1 - 3x)(2 - y) = 2 - y - 6x + 3xy$

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

d)  $(5 - 3x)(2 - 5x) = 10 - 25x - 6x + 15x^2 = 15x^2 - 31x + 10$

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

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

**Aufgabe 3**

a)  $(3x + 5y + 1)(2x + 4) = 6x^2 + 12x + 10xy + 20y + 2x + 4 = 6x^2 + 14x + 10xy + 20y + 4$

b)  $(3 + a + 2b)(a + 4) = 3a + 12 + a^2 + 4a + 2ab + 8b = a^2 + 7a + 2ab + 8b + 12$

c)  $(2 + a + 2b)(2a + 1 + b) = 4a + 2 + 2b + 2a^2 + a + ab + 2ab + 2b + 2b^2$   
 $= 2a^2 + 5a + 3ab + 4b + 2b^2 + 2$

d)  $(3x - 5)(x - y + 2) = 3x^2 - 3xy + 6x - 5x + 5y - 10 = 3x^2 + x - 3xy + 5y - 10$

e)  $(a - b - c)(a + b - c) = a^2 + ab - ac - ab - b^2 + bc - ac - bc + c^2 = a^2 - b^2 + c^2 - 2ac$

f)  $(5x - 4z)(2x - 5 + z) = 10x^2 - 25x + 5xz - 8xz + 20z - 4z^2 = 10x^2 - 25x - 3xz + 20z - 4z^2$

**Aufgabe 4**

a)  $(0,5x - 1)(2x + 0,25) = x^2 + 0,125x - 2x - 0,25 = x^2 - 1,875x - 0,25$

b)  $(1,5x + 4,2y)(3 + 5y) = 4,5x + 7,5xy + 12,6y + 21y^2$

c)  $(0,6 - 0,8a)(5b - 4) = 3b - 2,4 - 4ab + 3,2a$

d)  $(0,1a - 0,2b)(0,3a + 0,4b) = 0,03a^2 + 0,04ab - 0,06ab - 0,08b^2 = 0,03a^2 - 0,02ab - 0,08b^2$

e)  $(-0,8x - 1,4)(5x - 0,5) = -4x^2 + 0,4x - 7x + 0,7 = -4x^2 - 6,6x + 0,7$

f)  $(1,25a + 3,75b)(4a - 15b) = 5a^2 - 18,75ab + 15ab - 56,25b^2 = 5a^2 - 3,75ab - 56,25b^2$

**Aufgabe 5**

a)  $\left(\frac{1}{2}x - 2y\right)(4x + 3y) = 2x^2 + 1\frac{1}{2}xy - 8xy - 6y^2 = 2x^2 - 6\frac{1}{2}xy - 6y^2$

b)  $\left(\frac{1}{3}x + \frac{1}{4}\right)\left(6x - \frac{2}{3}\right) = 2x^2 - \frac{2}{9}x + 1\frac{1}{2}x - \frac{1}{6} = 2x^2 + 1\frac{5}{18}x - \frac{1}{6}$

c)  $\left(\frac{2}{5} - \frac{3}{5}a\right)(10a + 15b) = 4a + 6b - 6a^2 - 9ab$

d)  $\left(\frac{5}{6}x - \frac{2}{3}\right)(8x - 6) = 6\frac{2}{3}x^2 - 5x - 5\frac{1}{3}x + 4 = 6\frac{2}{3}x^2 - 10\frac{1}{3}x + 4$

e)  $\left(1\frac{3}{4}x - 2\frac{1}{5}y\right)\left(\frac{2}{7}x - \frac{4}{11}y\right) = \frac{1}{2}x^2 - \frac{7}{11}xy - \frac{22}{35}xy + \frac{4}{5}y^2 = \frac{1}{2}x^2 - 1\frac{102}{385}xy + \frac{4}{5}y^2$

f)  $\left(2\frac{1}{2}x + 0,8y\right)\left(0,5x - 1\frac{1}{4}y\right) = 1\frac{1}{4}x^2 - 3\frac{1}{8}xy + \frac{2}{5}xy - y^2 = 1\frac{1}{4}x^2 - 2\frac{29}{40}xy - y^2$