Quadratische Klammergleichungen

1. a) $x(x + 4) + 5 = -1 - (2x + 3)$

    b) $3x(2x + 5) = x - 2(2x + 6)$

    c) $2x(x - 2) = 1 - 3(5 - 4x)$

    d) $12x(x + 1) = 42(x + 1) - (3x - 42)$

    e) $4(5 - x) = 2(x + 2)(5 - x) - 3(x + 2)$

    f) $(3x + 1)(3x + 2) + 28 = 12(3x + 1)$

2. a) $(x + 4)(x + 2) = -x(x + 10) - 4(x - 2)$

    b) $(2x + 10)(x + 1) - 96 = 12(x + 1)$

    c) $(x + 4)(x + 2) = -4(x - 2) + x(x + 10)$

    d) $(x + 3)(x + 4) = 6(x + 9)$

    e) $24(x - 2) = 5(x - 2)(x + 3) - 6(x + 3)$

    f) $(7 + 5x)(9x - 8) = (5 + 7x)(9 - 8x)$

3. a) $(x + 7)(13x - 3) = (1 + 7x)(13 - 3x)$

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

    c) $(x - 10)(x + 7) = (x - 7)(x + 3) - (x + 1)(x - 5)$

    d) $10x(x + 3) = 2(3x + 7)(x + 3) - 4(3x + 7)$

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

    f) $(x - 1)(x - 2) + (x - 5)(x + 4) = x^2 - 7x - 8$

4. a) $(x + 2)^2 + 5x + 2 = (2x - 6)^2$

    b) $(x - 4)^2 + (x - 3)^2 = 61$

    c) $(3x + 1)^2 - (x + 2)^2 = 33$

    d) $(x + 5)^2 + (x + 3)^2 = 100$

Quadratische Klammergleichungen – Lösungen

1. a) $x(x + 4) + 5 = -1 - (2x + 3)$
führt zu:
$x^2 + 6x + 9 = 0$
$L = \{ -3 \}$

b) $3x(2x + 5) = x - 2(2x + 6)$
führt zu:
$x^2 + 3x + 2 = 0$
$L = \{ -2; -1 \}$

c) $2x(x - 2) = 1 - 3(5 - 4x)$
führt zu:
$x^2 - 8x + 7 = 0$
$L = \{ 1; 7 \}$

d) $12x(x + 1) = 42(x + 1) - (3x - 42)$
führt zu:
$4x^2 - 9x - 28 = 0$
$L = \{ 4; -1,75 \}$

e) $4(5 - x) = 2(x + 2)(5 - x) - 3(x + 2)$
führt zu:
$2x^2 - 7x + 6 = 0$
$L = \{ 2; 1,5 \}$

f) $(3x + 1)(3x + 2) + 28 = 12(3x + 1)$
führt zu:
$x^2 - 3x + 2 = 0$
$L = \{ 1; 2 \}$

2. a) $(x + 4)(x + 2) = -x(x + 10) - 4(x - 2)$
führt zu:
$x^2 + 10x = 0$
$L = \{ -10; 0 \}$

b) $(2x + 10)(x + 1) - 96 = 12(x + 1)$
führt zu:
$x^2 = 49$
$L = \{ -7; 7 \}$

c) $(x + 4)(x + 2) = -4(x - 2) + x(x + 10)$
führt zu:
$0 = 0$
$L = D$

d) $(x + 3)(x + 4) = 6(x + 9)$
führt zu:
$x^2 + x - 42 = 0$
$L = \{ -7; 6 \}$

e) $24(x - 2) = 5(x - 2)(x + 3) - 6(x + 3)$
führt zu:
$x^2 - 5x = 0$
$L = \{ 0; 5 \}$

f) $(7 + 5x)(9x - 8) = (5 + 7x)(9 - 8x)$
führt zu:
$x^2 = 1$
$L = \{ 1; -1 \}$

3. a) $(x + 7)(13x - 3) = (1 + 7x)(13 - 3x)$
führt zu:
$x^2 = 1$
$L = \{ 1; -1 \}$

b) $(x + 3)(x - 2) + (x - 1)(x + 5) = (x + 4)(x + 2) + 1$
führt zu:
$x^2 - x - 20 = 0$
$L = \{ -4; 5 \}$

c) $(x - 10)(x + 7) = (x - 7)(x + 3) - (x + 1)(x - 5)$
führt zu:
$x^2 - 3x - 54 = 0$
$L = \{ 9; -6 \}$

d) $10x(x + 3) = 2(3x + 7)(x + 3) - 4(3x + 7)$
führt zu:
$2x^2 + 5x - 7 = 0$
$L = \{ 1; -3,5 \}$

e) $(x - 1)(x - 3) + (x - 4)(x + 2) = x^2 - 3x - 5$
führt zu:
$x^2 - 3x = 0$
$L = \{ 0; 3 \}$

f) $(x - 1)(x - 2) + (x - 5)(x + 4) = x^2 - 7x - 8$

führt zu:

$x^2 + 3x - 10 = 0$

$L = \{2; -5\}$

4. a) $(x + 2)^2 + 5x + 2 = (2x - 6)^2$

führt zu:

$x^2 - 11x + 10 = 0$

$L = \{1; 10\}$

c) $(3x + 1)^2 - (x + 2)^2 = 33$

führt zu:

$4x^2 + x - 18 = 0$

$L = \{2; -2,25\}$

e) $(4 - 3x)^2 - (3 - 2x)^2 - 3 = 0$

führt zu:

$5x^2 - 12x + 4 = 0$

$L = \{0,4; 2\}$

b) $(x - 4)^2 + (x - 3)^2 = 61$

führt zu:

$x^2 - 7x - 18 = 0$

$L = \{9; -2\}$

d) $(x + 5)^2 + (x + 3)^2 = 100$

führt zu:

$x^2 + 8x - 33 = 0$

$L = \{3; -11\}$

f) $(x - 1)^2 - (2x - 2) = -(x - 3)^2$

führt zu:

$x^2 - 5x + 6 = 0$

$L = \{2; 3\}$