Gleichungen mit binomischen Formeln

Arbeitsblatt

$(x + 2)^2 = x \cdot (x + 5)$

$x^2 + 4x + 4 = x^2 + 5x \quad / -x^2$

$4x + 4 = 5x \quad / -4x$

$\mathbf{4 = x}$

$(x + 1)^2 = (x - 1) \cdot (x + 7)$

$x^2 + 2x + 1 = x^2 + 7x - x - 7 \quad / -x^2$

$2x + 1 = 6x - 7 \quad / -2x$

$1 = 4x - 7 \quad / +7$

$8 = 4x \quad /: 4$

$\mathbf{2 = x}$

$(2x + 5)^2 - [(2x - 1) \cdot (2x + 1)] = 6$

$4x^2 + 20x + 25 - [4x^2 + 2x - 2x - 1] = 6$

$4x^2 + 20x + 25 - [4x^2 - 1] = 6$

$4x^2 + 20x + 25 - 4x^2 + 1 = 6$

$20x + 26 = 6 \quad / -26$

$20x = -20 \quad /: 20$

$\mathbf{x = -1}$

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

$9x^2 + 6x + 1 - 5x^2 + 2x = 4x^2 + 4x + 1$

$4x^2 + 8x + 1 = 4x^2 + 4x + 1 \quad / -4x^2$

$8x + 1 = 4x + 1 \quad / -4x$

$4x + 1 = 1 \quad / -1$

$4x = 0 \quad /: 4$

$\mathbf{x = 0}$

$(5x - 7)^2 - [(3x - 2)^2] = (4x + 1) \cdot (4x - 1) - 186$

$25x^2 - 70x + 49 - [9x^2 - 12x + 4] = 16x^2 - 4x + 4x - 1 - 186$

$25x^2 - 70x + 49 - 9x^2 + 12x - 4 = 16x^2 - 4x + 4x - 1 - 186$

$16x^2 - 58x + 45 = 16x^2 - 187 \quad / -16x^2$

$-58x + 45 = -187 \quad / -45$

$-58x = -232 \quad /: (-58)$

$\mathbf{x = 4}$

$(2x - 5)^2 - [(x + 1) \cdot (3x - 1)] = (x - 2) \cdot (x + 2) - 36$

$4x^2 - 20x + 25 - [3x^2 - x + 3x - 1] = x^2 + 2x - 2x - 4 - 36$

$4x^2 - 20x + 25 - 3x^2 + x - 3x + 1 = x^2 + 2x - 2x - 4 - 36$

$x^2 - 22x + 26 = x^2 - 40 \quad / -x^2$

$-22x + 26 = -40 \quad / -26$

$-22x = -66 \quad /: (-22)$

$\mathbf{x = 3}$