Quadratische Gleichungen Aufgabe 15

$$(a + bx)^2 + (ax - b)^2 = 2(a^2x^2 + b^2)$$

$$a^2+ abx + abx + b^2x^2 + a^2x^2 - abx - abx + b^2 = 2a^2x^2 + 2b^2$$

$$a^2x^2 + b^2x^2 + a^2 + b^2 = 2a^2x^2 + 2b^2 \mid -b^2$$

$$a^2x^2 + b^2x^2 + a^2 = 2a^2x^2 + b^2 \mid -a^2$$

$$a^2x^2 + b^2\, x^2 = 2a^2x^2 + b^2 - a^2 \mid -2a^2x^2$$

$$b^2x^2 - a^2x^2 = b^2 - a^2$$

$$x^2(b^2 - a^2) = b^2 - a^2 \mid \ :(b^2 - a^2)$$

$$x^2 = 1 \mid \sqrt{}$$

$$\mathbf{x_{1,2} = \pm \sqrt{1} = \pm 1}$$

$$x_1 = 1$$

$$x_2 = -1$$