

## Lösungen zu den Übungen zur Umformung von der Normalform in die Scheitelpunktsform

$x^2 + 2x - 2$	$x^2 + 2x + 1 - 1 - 2 =$ $(x + 1)^2 - 3$
$x^2 - 8x + 18$	$x^2 - 8x + 16 - 16 + 18 =$ $(x - 4)^2 + 2$
$x^2 + 12x + 28$	$x^2 + 12x + 36 - 36 + 28 =$ $(x + 6)^2 - 8$
$x^2 - 10x + 29$	$x^2 - 10x + 25 - 25 + 29 =$ $(x - 5)^2 + 4$
$x^2 + x - 2,75$	$x^2 + x + 0,25 - 0,25 - 2,75 =$ $(x + 0,5)^2 - 3$
$x^2 + \frac{4}{3}x + 1$	$x^2 + \frac{4}{3}x + \frac{4}{9} - \frac{4}{9} + 1 =$ $(x + \frac{2}{3})^2 + \frac{5}{9}$
$2x^2 - 4x + 12$	$2 \cdot (x^2 - 2x + 6) = 2 \cdot (x^2 - 2x + 1 - 1 + 6) =$ $2 \cdot [(x - 1)^2 + 5] = 2 \cdot (x - 1)^2 + 10$
$5x^2 - 60x + 190$	$5 \cdot (x^2 - 12x + 38) = 5 \cdot (x^2 - 12x + 36 - 36 + 38) =$ $5 \cdot [(x - 6)^2 + 2] = 5 \cdot (x - 6)^2 + 10$
$-3x^2 - 12x - 3$	$-3 \cdot (x^2 + 4x + 1) = -3 \cdot (x^2 + 4x + 4 - 4 + 1) =$ $-3 \cdot [(x + 2)^2 - 3] = -3 \cdot (x + 2)^2 + 9$
$-x^2 + 18x - 101$	$-1 \cdot (x^2 - 18x + 101) = -1 \cdot (x^2 - 18x + 81 - 81 + 101) =$ $-1 \cdot [(x - 9)^2 + 20] = -(x - 9)^2 - 20$
$4x^2 - 80x + 420$	$4 \cdot (x^2 - 20x + 105) = 4 \cdot (x^2 - 20x + 100 - 100 + 105) =$ $4 \cdot [(x - 10)^2 + 5] = 4 \cdot (x - 10)^2 + 20$