**Normalparabeln VII**

Von der Normalform zur Scheitelform

Die Normalform einer quadratischen Funktion (Normalparabel) ist: **f(x) = x² + bx + c**

Die Scheitelform (Normalparabel) ist: **f(x) = (x + b)² + c**

Bei der Scheitelform wird schnell der Scheitelpunkt abgelesen.

Forme um.

1. Normalform zur Scheitelform:

|  |  |
| --- | --- |
| f(x) = x² + 6x – 12f(x) = x² + 6x + 9 – 12f(x) = (x² + 6x + 9) – 9 – 12**f(x) = (x + 3)² -21** | f(x) = x² - 1,2x + 1,1f(x) = x²-1,2x+0,36–0,36+1,1f(x) = (x²-1,2x+0,36)–0,36+1,1**f(x) = (x – 0,6)² + 0,74** |
| f(x) = x² + 8x – 13f(x) = x² + 8x + 16 – 16 – 13f(x) = (x²+8x+16) – 16 – 13**f(x) = (x + 4)² - 29** | f(x) = x² - 1,4x + 1,1f(x) = x²-1,4x+0,49-0,49+1,1f(x) = (x²-1,4x+0,49)-0,49+1,1**f(x) = (x – 0,7)² + 0,61** |
| f(x) = x² + 10x + 15f(x) = x² + 10x + 25 – 25 + 15f(x) = (x² + 10x + 25)–25 + 15**f(x) = (x + 5)² - 10** | f(x) = x² - 1,6x – 1,9f(x) = x²-1,6x+0,64-0,64–1,9f(x) = (x²-1,6x+0,64)-0,64–1,9**f(x) = (x – 0,8)² - 2,54** |
| f(x) = x² + 12x - 23f(x) = x² + 12x + 36 – 36 - 23f(x) = (x²+12x+36) – 36 - 23**f(x) = (x + 6)² - 59** | f(x) = x² - 2,6x – 2,9f(x) = x²-2,6x+1,69-1,69–2,9f(x) = (x²-2,6x+1,69)-1,69–2,9**f(x) = (x – 1,3)² - 4,59** |

1. Scheitelform zur Normalform:

|  |  |
| --- | --- |
| f(x) = (x + 4)² - 10f(x) = x² + 8x + 16 - 10**f(x) = x² + 8x + 6** | f(x) = (x – 2,4)² + 1,3f(x) = x² - 4,8x + 5,76+13**f(x) = x² - 4,8x 18,76** |
| f(x) = (x + 6)² – 12f(x) = x² + 12x + 36 - 12**f(x) = x² + 12x + 24** | f(x) = (x – 1,4)² + 1,8f(x) = x² - 2,8x + 1,96 +1,8**f(x) = x² - 2,8x + 3,76** |
| f(x) = (x + 8)² – 12f(x) = x² + 16x + 64 - 12**f(x) = x² + 16x + 52** | f(x) = (x – 3,6)² + 1,5f(x) = x² - 7,2x + 12,96+1,5**f(x) = x² - 7,2x + 14,46** |
| f(x) = (x + 10)² – 12f(x) = x² + 20x + 100 - 12**f(x) = x² + 20x + 88** | f(x) = (x – 3,2)² + 1,5f(x) = x² - 6,4x +10,24+1,5**f(x) = x² - 6,4x + 11,74** |