

## Bestimme die Nullstellen der Funktionen

1.  $f(x) = 4x$

$f(x) = 2x + 1$

$f(x) = -x - 2$

$f(x) = \frac{1}{3}x + 2$

2.  $f(x) = x^2 - 9$

$f(x) = x^2 + 2x$

$f(x) = 2x^2 - 4x - 6$

$f(x) = \frac{1}{2}x^2 + 3x + 5$

3.  $f(x) = x^3 - 8$

$f(x) = x^3 - 3x^2 - 6x$

$f(x) = 2x^3 - 8x^2$

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

4.  $f(x) = 2x^4 - 18x^2$

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

$f(x) = x^4 + 2x^3 - x^2 - 4x - 4$

$f(x) = -x^4 + 2x^3 - x + 2$

5.  $f(x) = (x + 1)(x - 4)$

$f(x) = (x^2 + 2x - 4)(x + 2)$

$f(x) = \frac{9}{x^2} - 1$

$f(x) = \frac{4x^2 - 3}{2x^2 + 4x} - 2$

6.  $f(x) = 2e^{2x} - 10$

$f(x) = -10 \cdot 0,5^x + 2$

$f(x) = \sqrt{x} - 4$

$f(x) = \sqrt{x^2 + 4} - 8,5$

## Lösungen

1.  $x = 0$   
 $x = -0,5$   
 $x = -2$   
 $x = -6$

2.  $x_1 = -3, \quad x_2 = 3$   
 $x_1 = -2, \quad x_2 = 0$   
 $x_1 = -1, \quad x_2 = 3$   
 Keine Lösung

3.  $x = 2$   
 $x_1 = -1,37, \quad x_2 = 0, \quad x_3 = 4,37$   
 $x_1 = -4, \quad x_2 = 0$   
 $x_1 = -3,14 \quad x_2 = -0,59, \quad x_3 = 1$

4.  $x_1 = -3, \quad x_2 = -2, \quad x_3 = -3$   
 $x_1 = -1,21, \quad x_2 = 1,21$   
 $x_1 = -2, \quad x_2 = 1,52$   
 $x_1 = -1, \quad x_2 = 2$

5.  $x_1 = -1, x_2 = 4$   
 $x_1 = -3,24, \quad x_2 = -2, \quad x_3 = 1,24$   
 $x_1 = -3, \quad x_2 = 3$   
 $x_1 = -\frac{3}{8}$

6.  $x = 0,8$   
 $x = 2,32$   
 $x = 16$   
 $x_1 = -8,26, \quad x_2 = 8,26$