

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

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

$$f''(x) = 6x - 6$$

$$f'''(x) = 6$$

EP: notw.  $f'(x) = 0$

$$3x^2 - 6x - 6 = 0 \quad | :3$$

$$x^2 - 2x - 2 = 0 \quad | p = -2 \quad q = -2$$

$$x_{1/2} = 1 \pm \sqrt{1^2 + 2} = 1 \pm \sqrt{3}$$

$$x_1 = 2,732 \quad x_2 = \cancel{0,732} - 0,732$$

Prüfung HP/TP:  $f''(x_1) = 6 \cdot (2,732) - 6 = 10,39 > 0$  TP  
 $f''(x_2) = 6 \cdot (-0,732) - 6 = -10,39 < 0$  HP

y-Werte:

$$x_1: f(2,732) = -18,39$$

$$T(2,732 | -18,39)$$

$$x_2: f(-0,732) = 2,392$$

$$H(-0,732 | 2,392)$$

WP: notw. Bed.  $f''(x) = 0$  hinr. Bed.  $f'''(x) = 6 > 0$

$$6x - 6 = 0 \quad | +6$$

$$6x = 6 \quad | :6$$

$$x = 1$$

WP!

y-Wert

$$f(1) = 1 - 3 - 6 = -8$$

$$W(1 | -8)$$