

**Musterlösung 1.Schulaufgabe 30.11.2010 Analysis Gruppe A**

$$-1 \cdot m = \frac{2-0}{1-5} = \frac{2}{-4} = -\frac{1}{2} \quad A(1|2) \text{ in } y=mx+t: \quad 2 = -\frac{1}{2} \cdot 1 + t \rightarrow t=2,5 \rightarrow g: y = -\frac{1}{2}x + 2,5$$

1.2 p symmetrisch zu  $x=2 \rightarrow$  Nullstellen  $x_1=5$  und  $x_2=-1$

$$\rightarrow \text{Ansatz Faktorform: } y = a(x-5)(x+1) \quad A(1|2) \text{ einsetzen: } 2 = a(1-5)(1+1) \rightarrow 2 = -8a \rightarrow a = -\frac{1}{4}$$

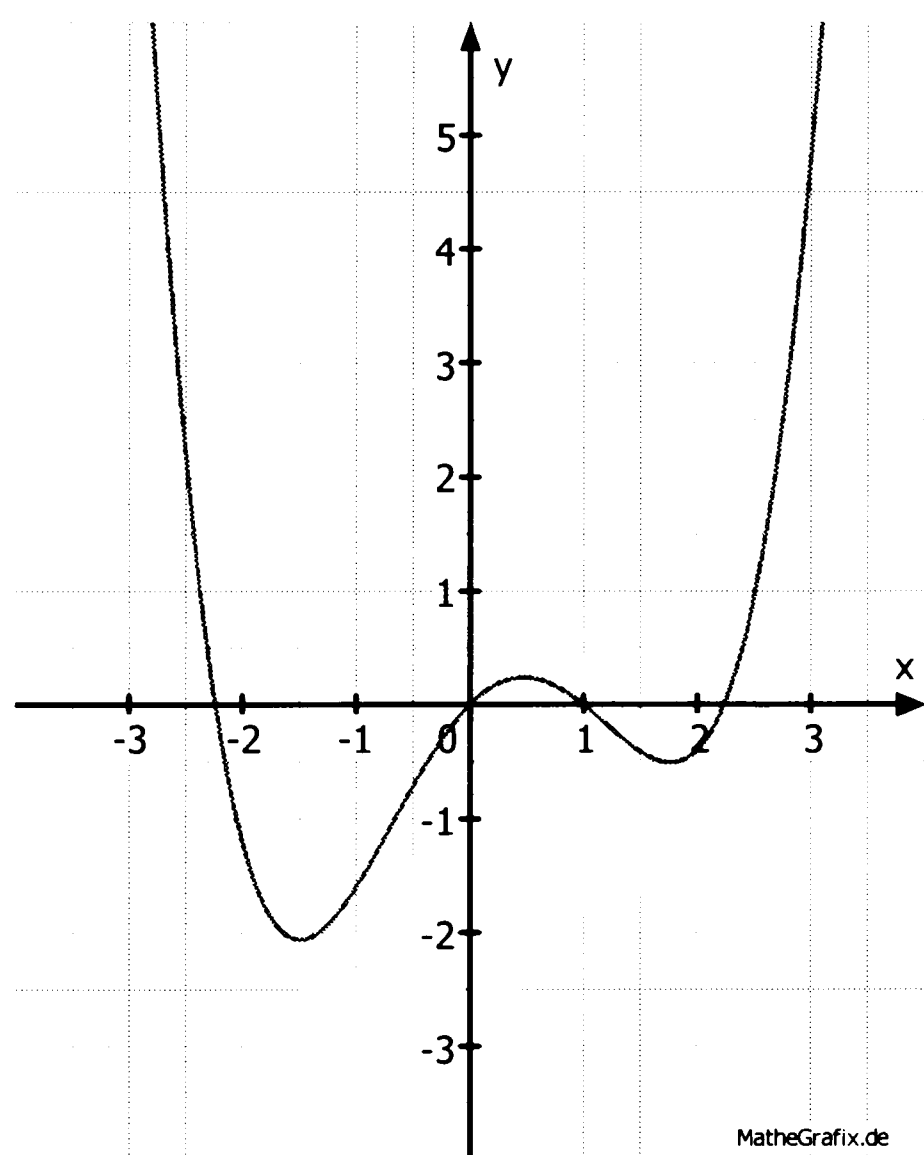
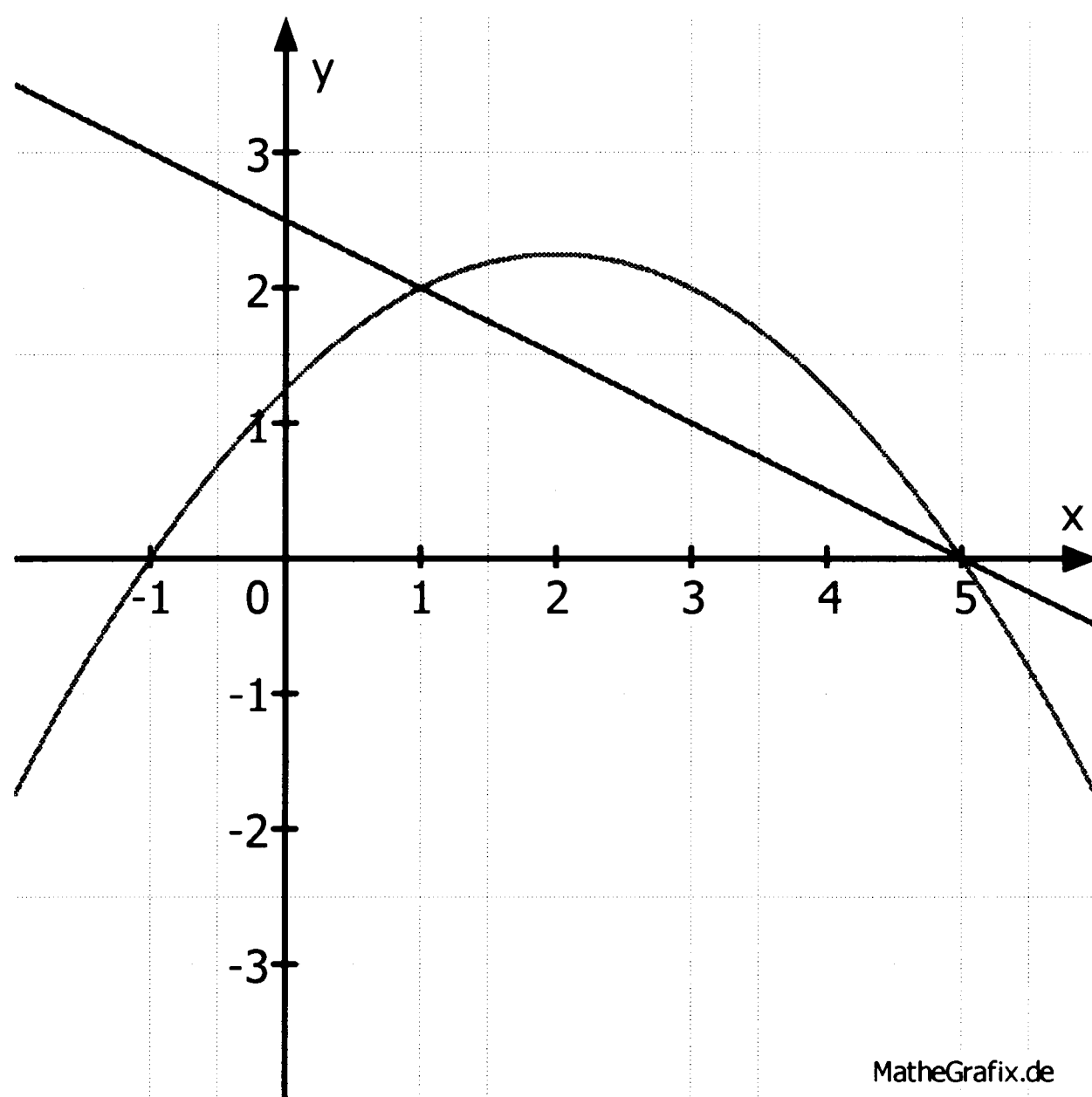
$$\rightarrow p(x) = -\frac{1}{4}(x-5)(x+1)$$

$$1.3 \quad x_s=2 \quad y_s=p(2)=2,25 \quad S(2|2,25) \\ p(-2)=p(6) = -1,75$$

$$2. \quad 0,2x^4 - 0,2x^3 - x^2 + x = 0 \\ 0,2x(x^3 - x^2 - 5x + 5) = 0$$

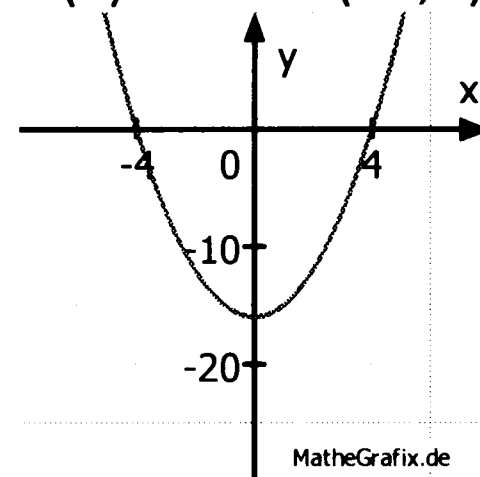
$x_1=0$  Probieren (oder Wertetab.):  $x_2=1$

$$(x^3 - x^2 - 5x + 5): (x-1) = x^2 - 5 \\ \begin{array}{r} -(x^3 - x^2) \\ \hline -5x + 5 \end{array} \quad \underline{x_3=\sqrt{5}} \quad \underline{x_4=-\sqrt{5}} \\ \begin{array}{r} -(-5x + 5) \\ \hline \end{array}$$



$$3.1. \quad -\frac{1}{2}x^2 + kx - 2 = 6 \rightarrow -\frac{1}{2}x^2 + kx - 8 = 0$$

$$D(k) = k^2 - 4 \cdot (-0,5) \cdot (-8) = k^2 - 16 = 0 \quad k_1=4 \quad k_2=-4$$



Aus Skizze:  $D < 0$  für  $-4 < k < 4$

$$3.2 \quad \text{z.B. } x_s=k \rightarrow a=-5 \text{ und } b=3$$