

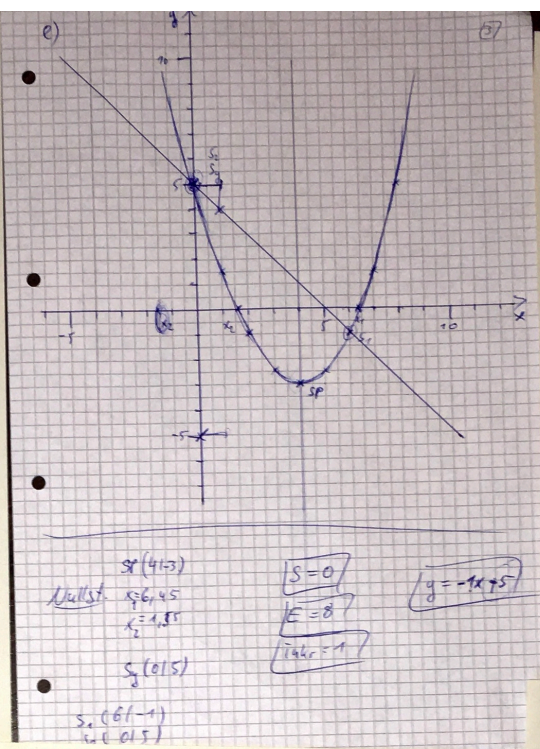
P7
 $y = \frac{1}{2} \cdot (x-4)^2 - 3$

a) - Lage des Scheitelpunktes $S(4|-3)$
 - a ist positiv \Rightarrow Parabel ist nach oben geöffnet
 - Die Funktion ist um Faktor $a=0,5$ gestaucht.

b) $y = \frac{1}{2} \cdot (x-4)^2 - 3$
 $y = \frac{1}{2} \cdot (x^2 - 8x + 16) - 3$
 $y = \frac{1}{2} \cdot x^2 - 4x + 8 - 3$
 $y = \frac{1}{2} \cdot x^2 - 4x + 5$ q.e.d.

Ergebnis:
 $y = \frac{1}{2}x^2 - 4x + 5$
 $(a+b)^2 = a^2 - 2ab + b^2$

c) $S_2(0|5)$
 $0 = \frac{1}{2} \cdot x^2 - 4x + 5 \quad | : \frac{1}{2}$
 $0 = x^2 - 8x + 10$
 $x_{1/2} = 4 \pm \sqrt{4^2 - 10}$
 $x_{1/2} = 4 \pm \sqrt{16 - 10}$
 $x_{1/2} = 4 \pm \sqrt{6}$
 $x_1 = 4 + \sqrt{6}$
 $x_2 = 4 - \sqrt{6}$

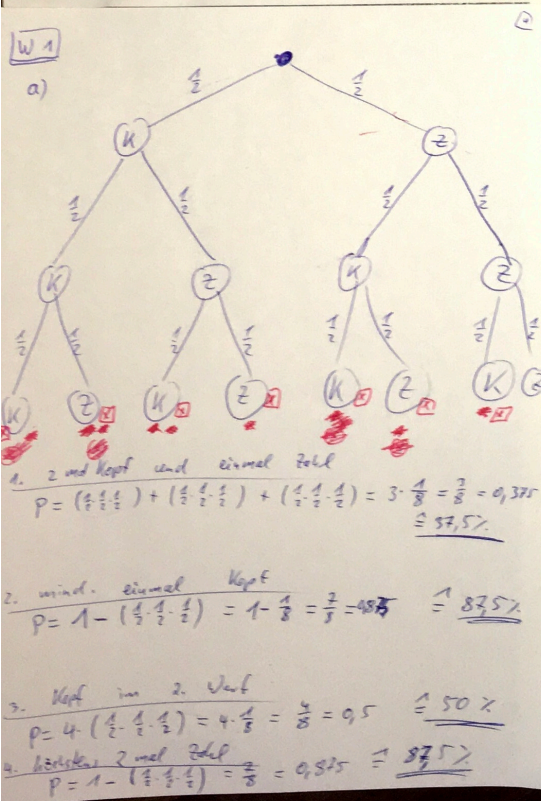


$-x + 5 = \frac{1}{2}x^2 - 4x + 5 \quad | +x$
 $5 = \frac{1}{2}x^2 - 3x + 5 \quad | -5$
 $0 = \frac{1}{2}x^2 - 3x + 0 \quad | : \frac{1}{2}$
 $0 = x^2 - 6x + 0$
 $x_{1/2} = 3 \pm \sqrt{3^2 - 0}$
 $x_{1/2} = 3 \pm \sqrt{9}$
 $x_{1/2} = 3 \pm 3$
 $x_1 = 6$
 $x_2 = 0$

$y = -1 \cdot 6 + 5$
 $y = -6 + 5$
 $y = -1$
 $S_1(6|-1)$

$y = -1 \cdot 0 + 5$
 $y = 0 + 5$
 $y = 5$
 $S_2(0|5)$

$\begin{matrix} I & II \\ III & IV \\ V & VI \end{matrix}$



W2

a) $3x - 8 = 4 + 5x \quad | -3x$
 $-8 = 4 + 2x \quad | -4$
 $-12 = 2x \quad | :2$
 $-6 = x$

b) $20x - 3(5x + 7) = -2(3 - x)$
 $20x - 15x - 21 = -6 + 2x$
 $5x - 21 = -6 + 2x \quad | -2x$
 $3x - 21 = -6 \quad | +21$
 $3x = 15 \quad | :3$
 $x = 5$

c) $8 = \frac{1}{2} \cdot x^2 \quad | : \frac{1}{2}$
 $16 = x^2 \quad | \sqrt{\quad}$
 $\pm 4 = x_{1/2}$
 $x_1 = 4$
 $x_2 = -4$

d) $2x^2 - 6 = 4x \quad | -4x$
 $2x^2 - 4x - 6 = 0 \quad | :2$
 $x^2 - 2x - 3 = 0$
 $x_{1/2} = 1 \pm \sqrt{1^2 + 3}$
 $x_{1/2} = 1 \pm \sqrt{4}$
 $x_{1/2} = 1 \pm 2$
 $x_1 = 3$
 $x_2 = -1$

