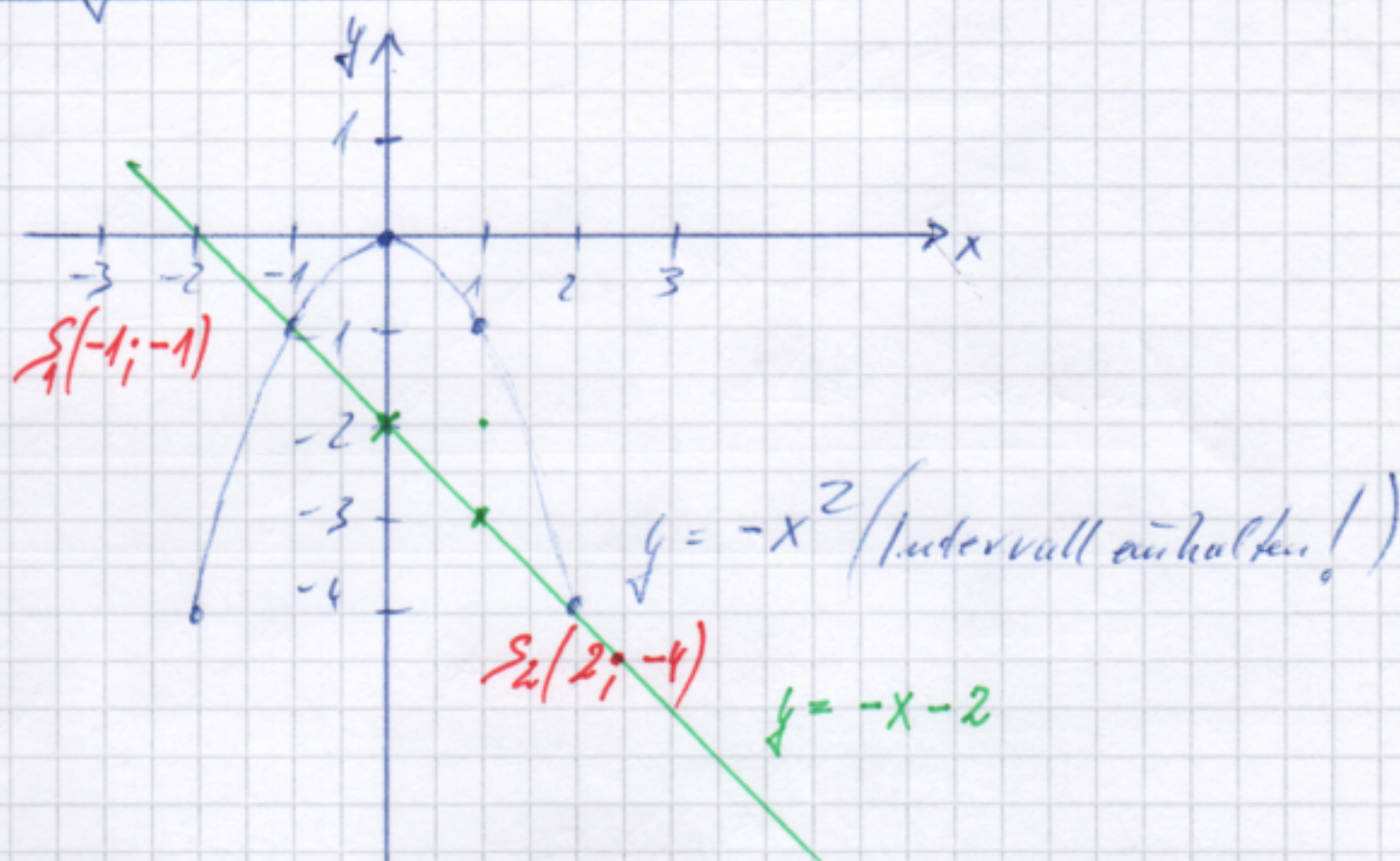


Lösung WH 3 Funktionen

3.1



3.2

$$y = x^2 - 2x - 4$$

$$y = -x^2$$

3.2.1

$$= (x-1)^2 - 5$$

$$S(0;0)$$

$$S(1;-5)$$

3.2.2

$$0 = (x-1)^2 - 5 \quad | +5$$

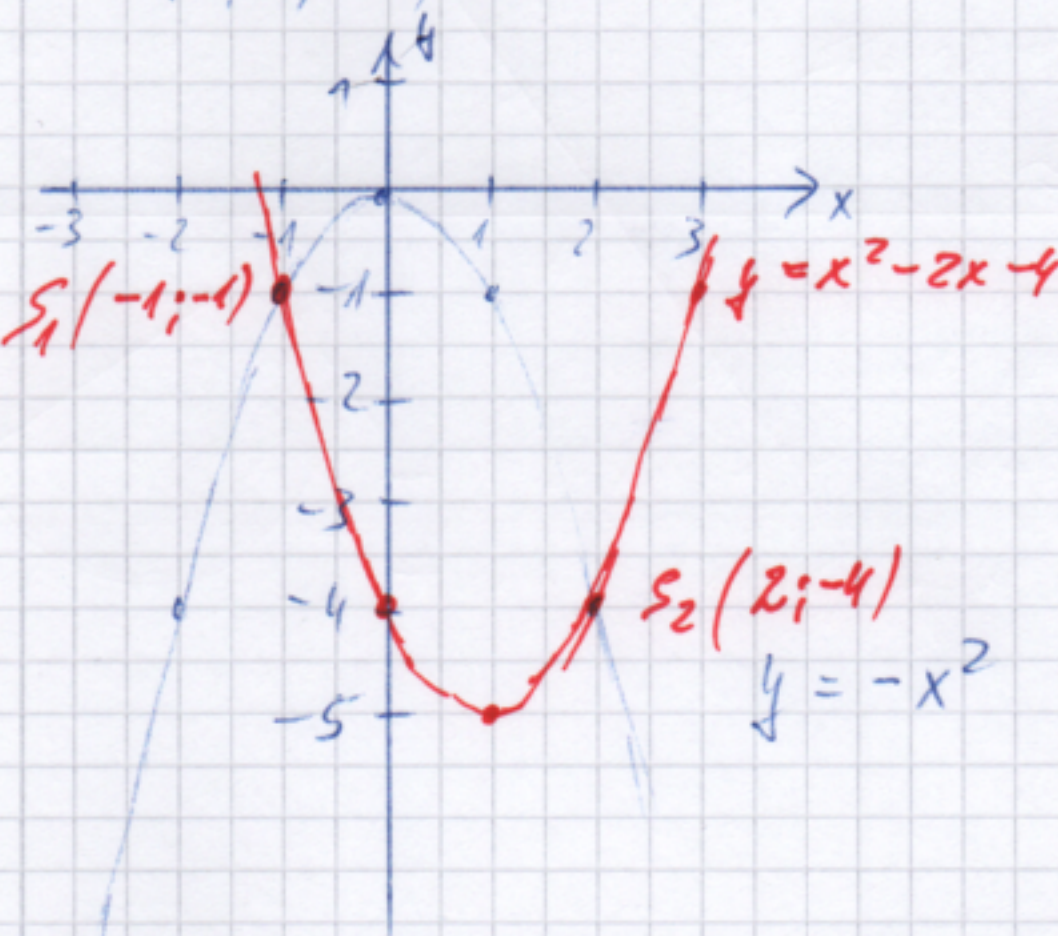
$$5 = (x-1)^2 \quad | \sqrt{}$$

$$\pm \sqrt{5} = x-1 \quad | +1$$

$$x_1 = 2,24 + 1 = 3,24$$

$$x_2 = -2,24 + 1 = -1,24$$

3.2.2



3.2.3

$$x = 20$$

$$y = 20$$

$$f(x) = 20^2 - 2 \cdot 20 - 4$$

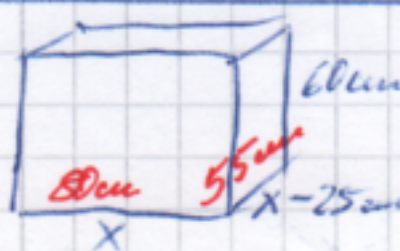
$$20 = (x-1)^2 - 5 \quad | +5$$

$$25 = (x-1)^2 \quad | \sqrt{}$$

$$\pm 5 = x-1 \quad | +1$$

$$x_1 = 6 \quad x_2 = -4$$

3.3



$$V = 264000 \text{ cm}^3$$

$$x^2 - 25x - 4400 = 0$$

$$x_1 = 88 \text{ cm} \Rightarrow 55 \text{ cm}$$

$$x_2 \text{ fällt}$$

$$V = 60 \text{ cm} \cdot x \cdot (x-25 \text{ cm}) \quad | :60$$

$$4400 = x \cdot (x-25)$$

$$4400 = x^2 - 25x$$

$$= x(x-25)$$

$$\rightarrow x_1 = 0 \text{ cm} \quad x_2 = 25$$