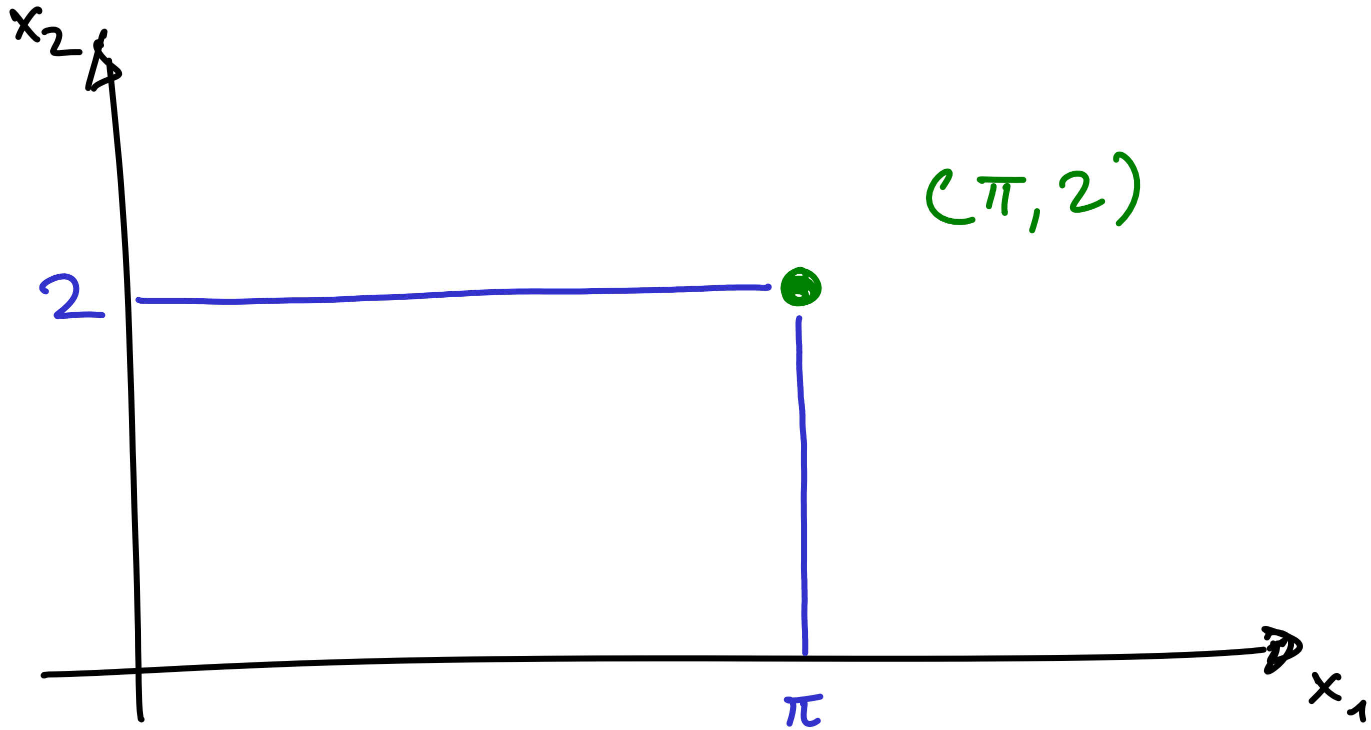
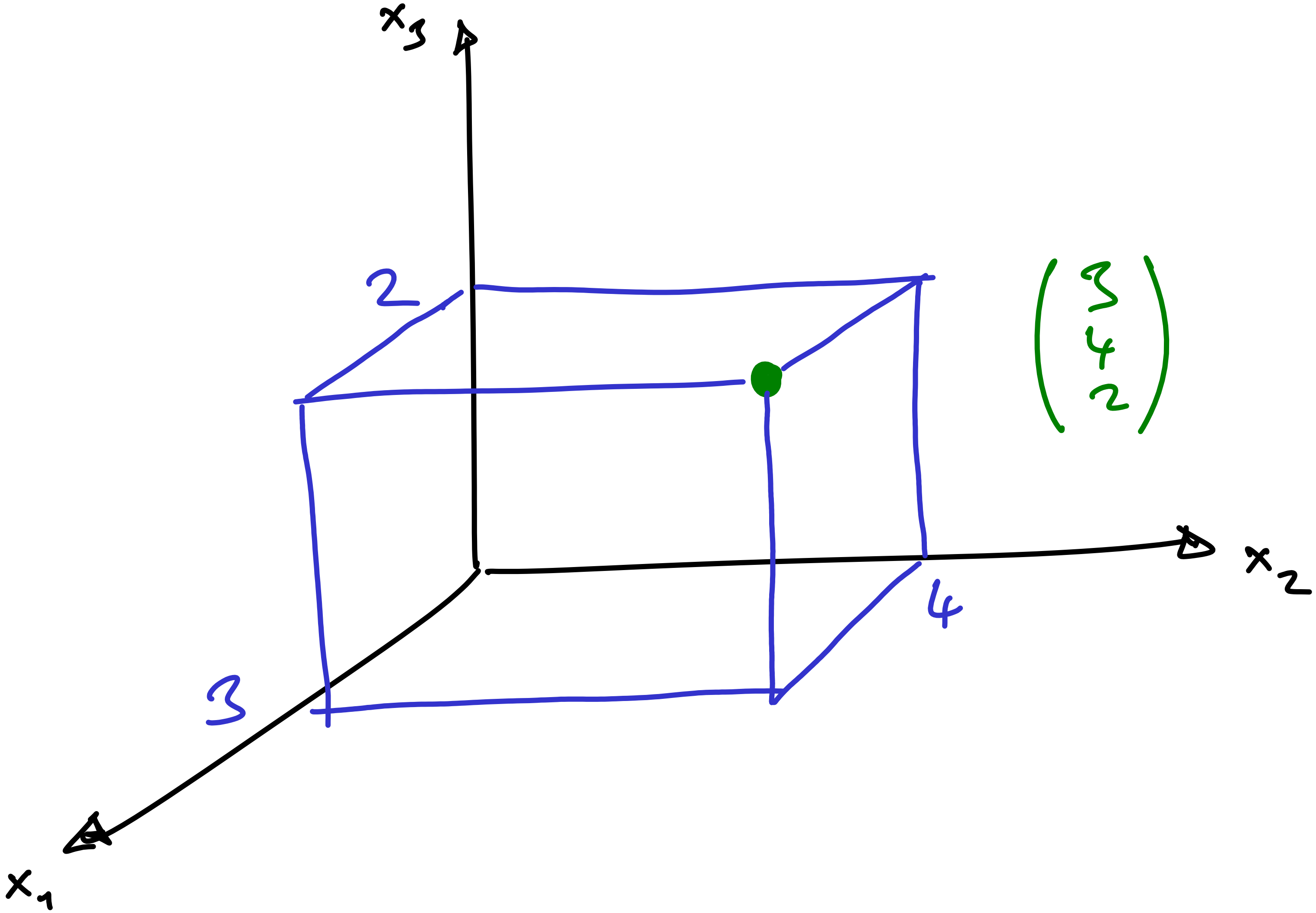
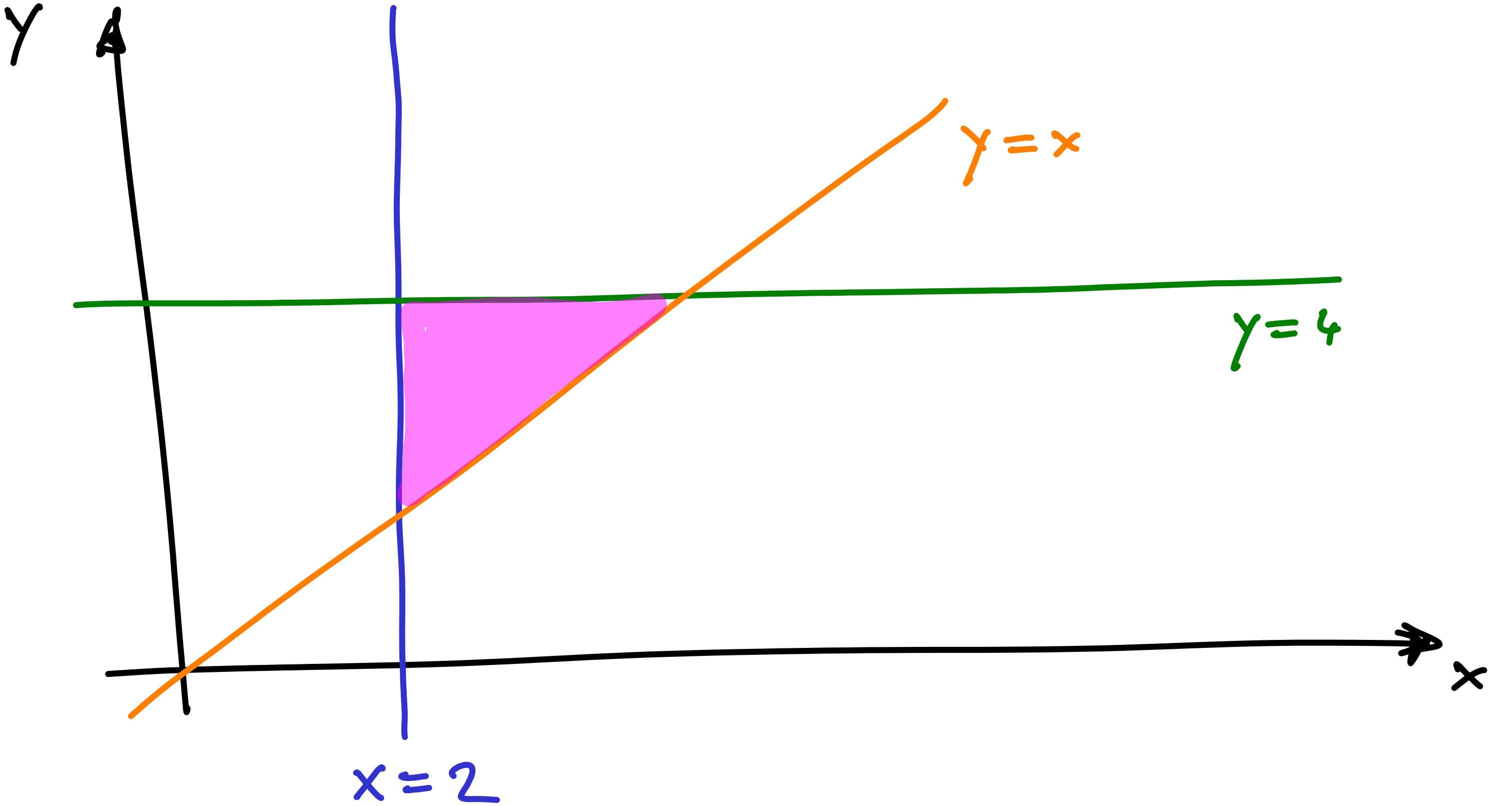


x_2
$(\pi, 2)$
2
π
x_1



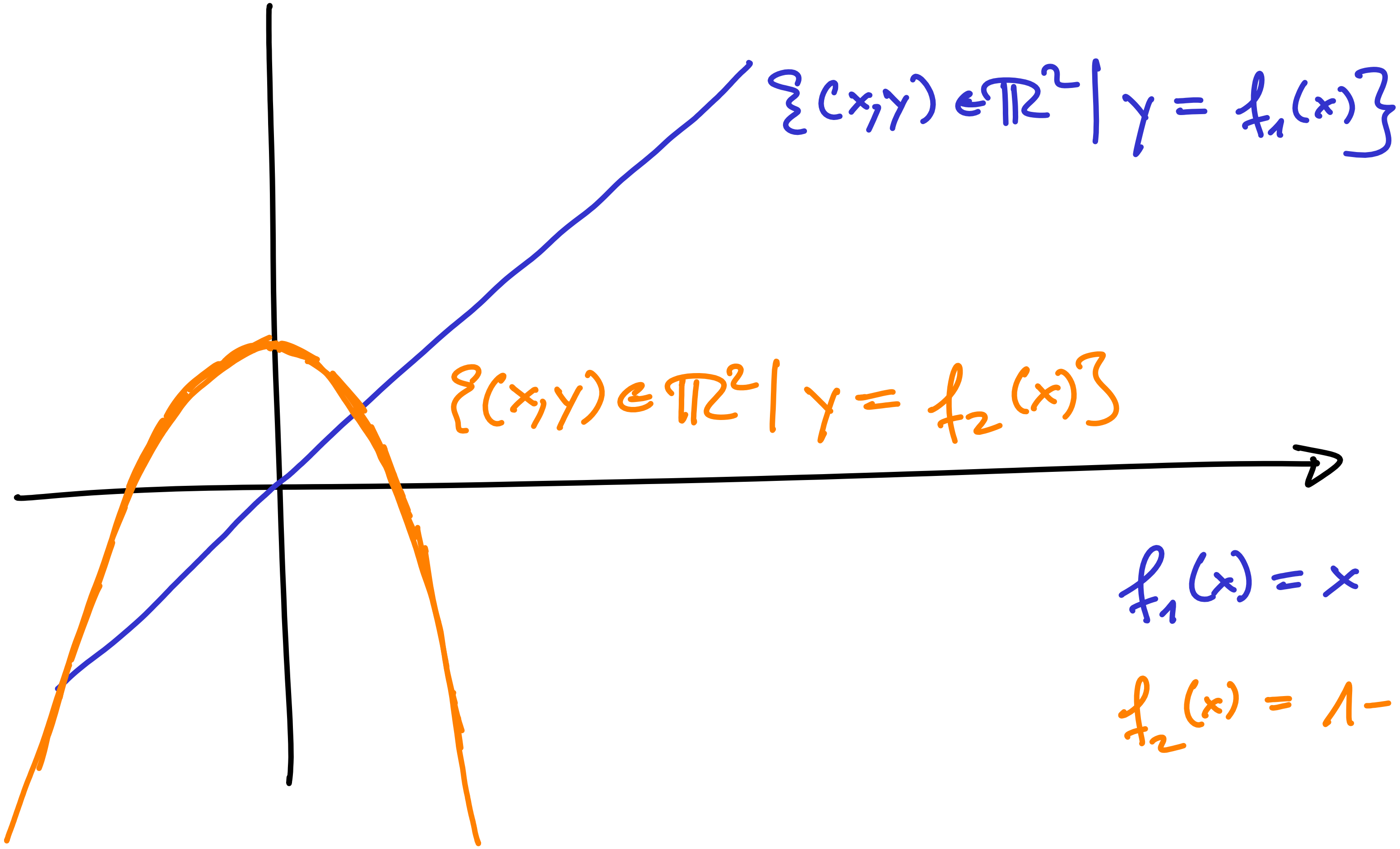
x3
x2
x1
2
3
4
(3 4 2)



$\{(x,y)\in\mathbb{R}^2 \mid x=2\}$, $\{(x,y)\in\mathbb{R}^2 \mid y=4\}$, $\{(x,y)\in\mathbb{R}^2 \mid x=y\}$

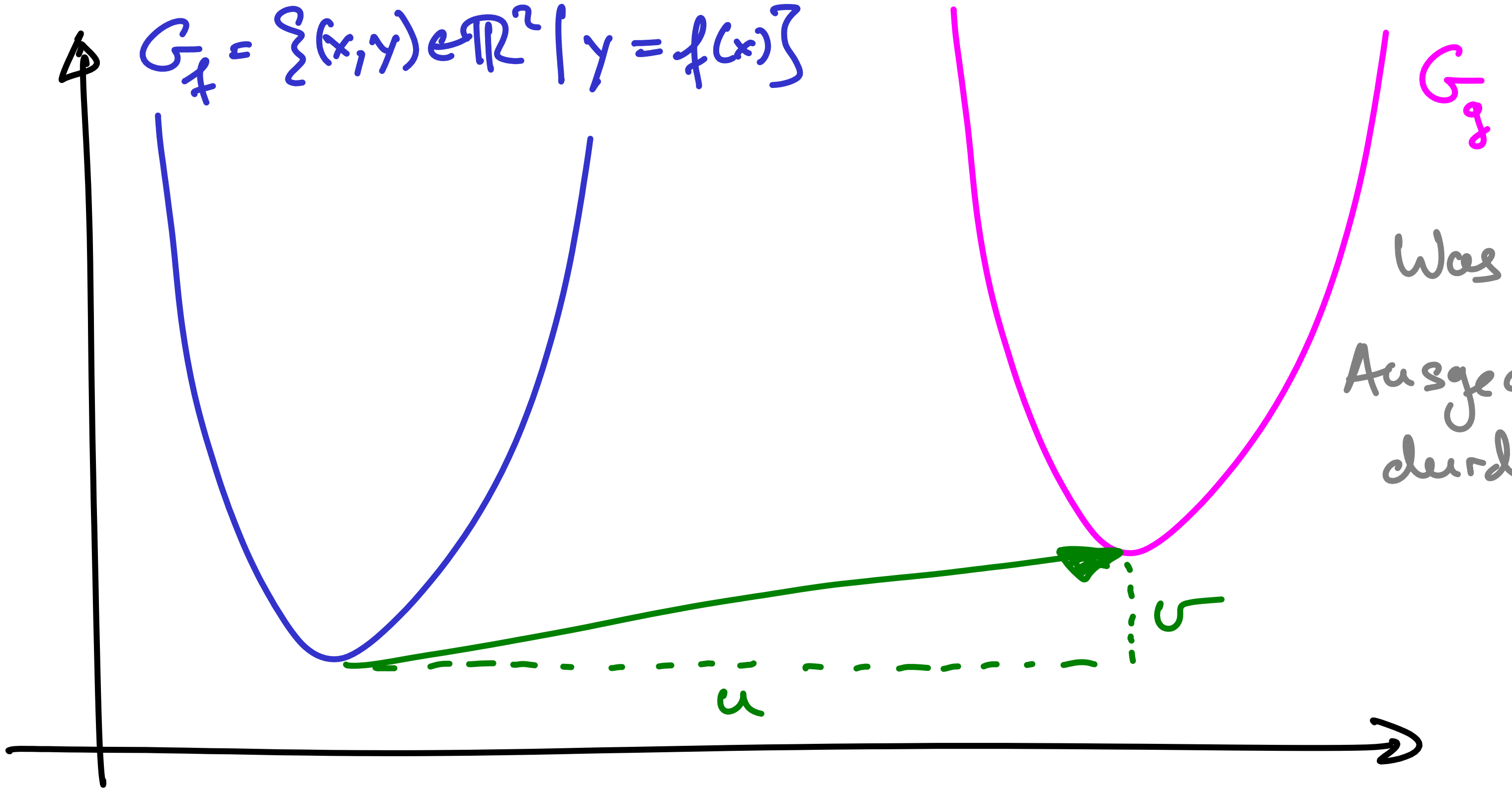
$\{(x,y)\in\mathbb{R}^2 \mid x>2\} \cap \{(x,y)\in\mathbb{R}^2 \mid y<4\} \cap \{(x,y)\in\mathbb{R}^2 \mid y>x\}$

$= \{(x,y)\in\mathbb{R}^2 \mid x>2 \text{ und } y<4 \text{ und } y>x\}$



$f_1(x) = x$

$f_2(x) = 1 - x^2$



Was ist g?
Ausgedrückt durch f...

$$G_f = \{(x,y)\in\mathbb{R}^2 \mid y = f(x)\}$$

Translation: $(x,y) \longmapsto (x+u,\ y+v) = (\tilde{x},\tilde{y})$

$$G_f \longmapsto \{(\tilde{x},\tilde{y})\in\mathbb{R}^2 \mid \underline{y = f(x)}\}$$

drücke durch $(\tilde{x},\tilde{y})$ aus

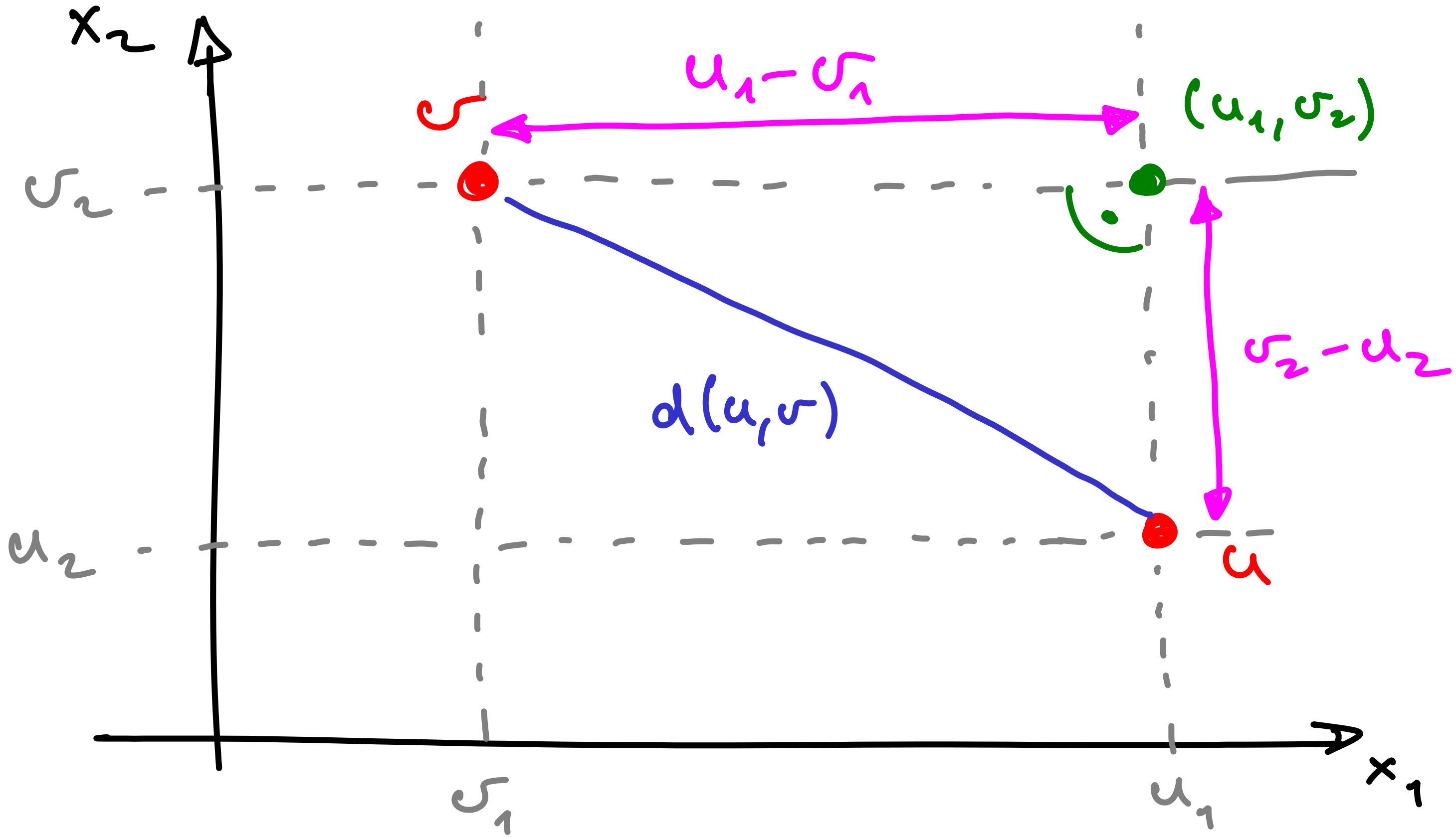
$$= \{(\tilde{x},\tilde{y})\in\mathbb{R}^2 \mid \tilde{y} - v = f(\tilde{x}-u)\}$$

$$= \{(\tilde{x},\tilde{y})\in\mathbb{R}^2 \mid \tilde{y} = f(\tilde{x}-u) + v\}$$

nenne $(\tilde{x},\tilde{y})$ nun (x,y)

$$= \{(x,y)\in\mathbb{R}^2 \mid y = f(x-u) + v\}$$

$$= G_g \quad \text{wobei} \quad g(x) = f(x-u) + v$$

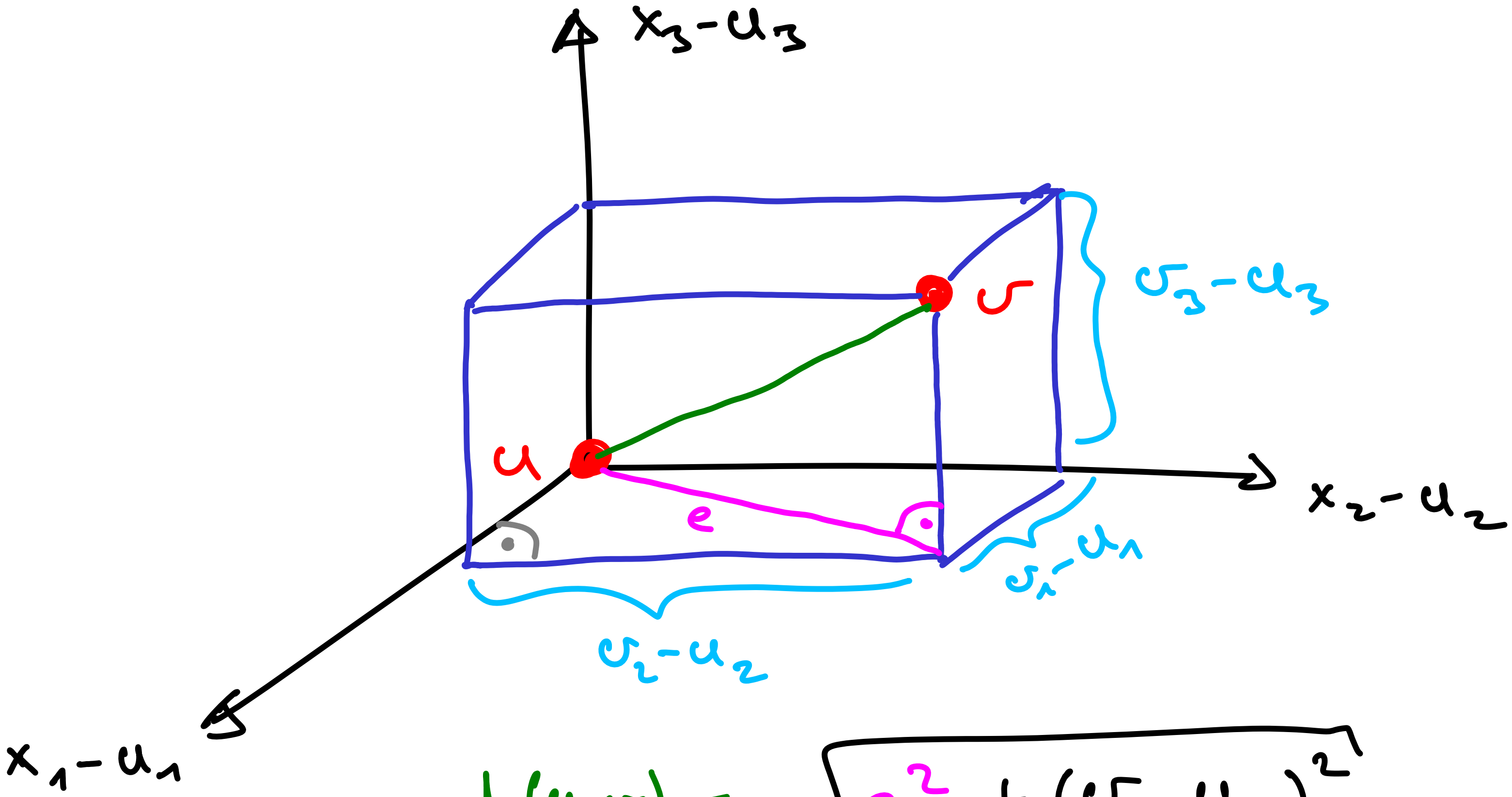


$$[d(u,v)]^2 = (v_1 - u_1)^2 + (v_2 - u_2)^2$$

$$\Rightarrow \quad d(u,v) = \sqrt{(v_1 - u_1)^2 + (v_2 - u_2)^2}$$

$d(u,v) = d(v,u)$, $\quad d : \mathbb{R}^2 \times \mathbb{R}^2 \to \mathbb{R}$

oder $\; d : \mathbb{R}^4 \to \mathbb{R}$



$$d(u,v) = \sqrt{e^2 + (v_3 - u_3)^2}$$

$$e^2 = (v_1 - u_1)^2 + (v_2 - u_2)^2$$

Erklärung für Bergmannsche Regel

Wärmeproduktion proportional zu Volumen V

Wärmeverlust proportional zur Oberfläche O

Quotient

$$\underbrace{\frac{O}{V}}_{\text{Kragebär}} \xrightarrow[(x,y,z) \mapsto (\alpha x, \alpha y, \alpha z)]{\text{zentr. Streckung}} \underbrace{\frac{\alpha^2 O}{\alpha^3 V}}_{\text{Eisbär}} = \underbrace{\frac{O}{\alpha V}}_{\text{kleiner als bei Kragebär}}$$

$\alpha > 1$