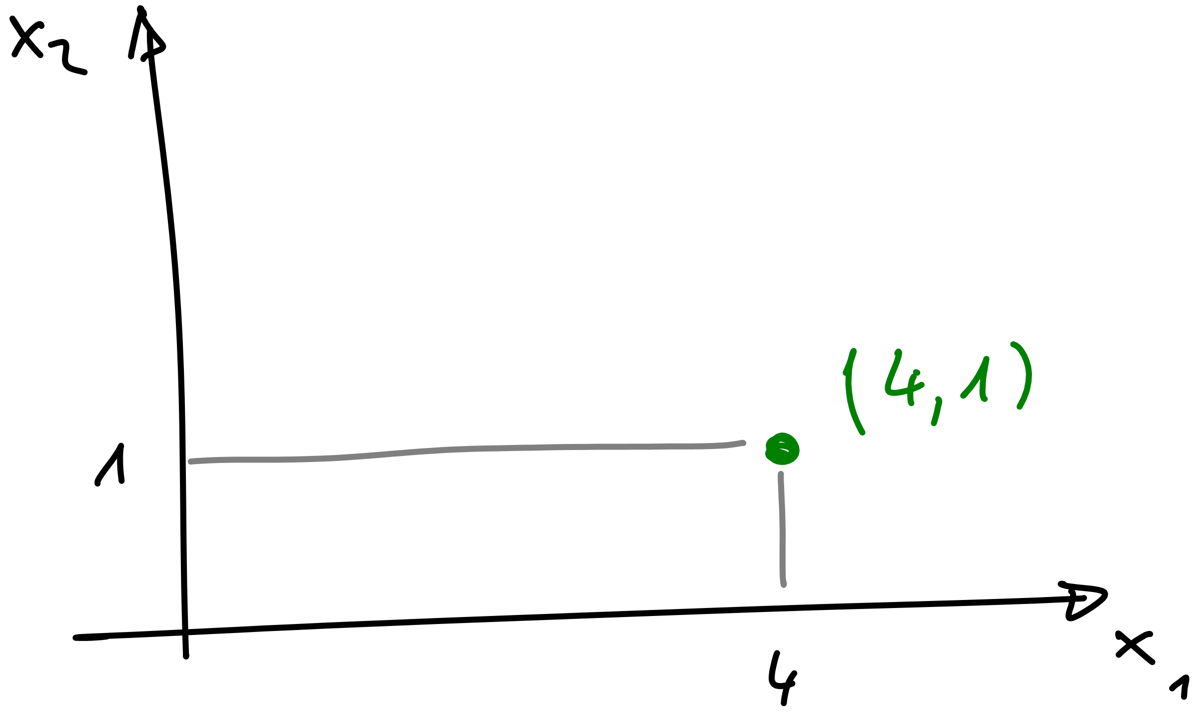
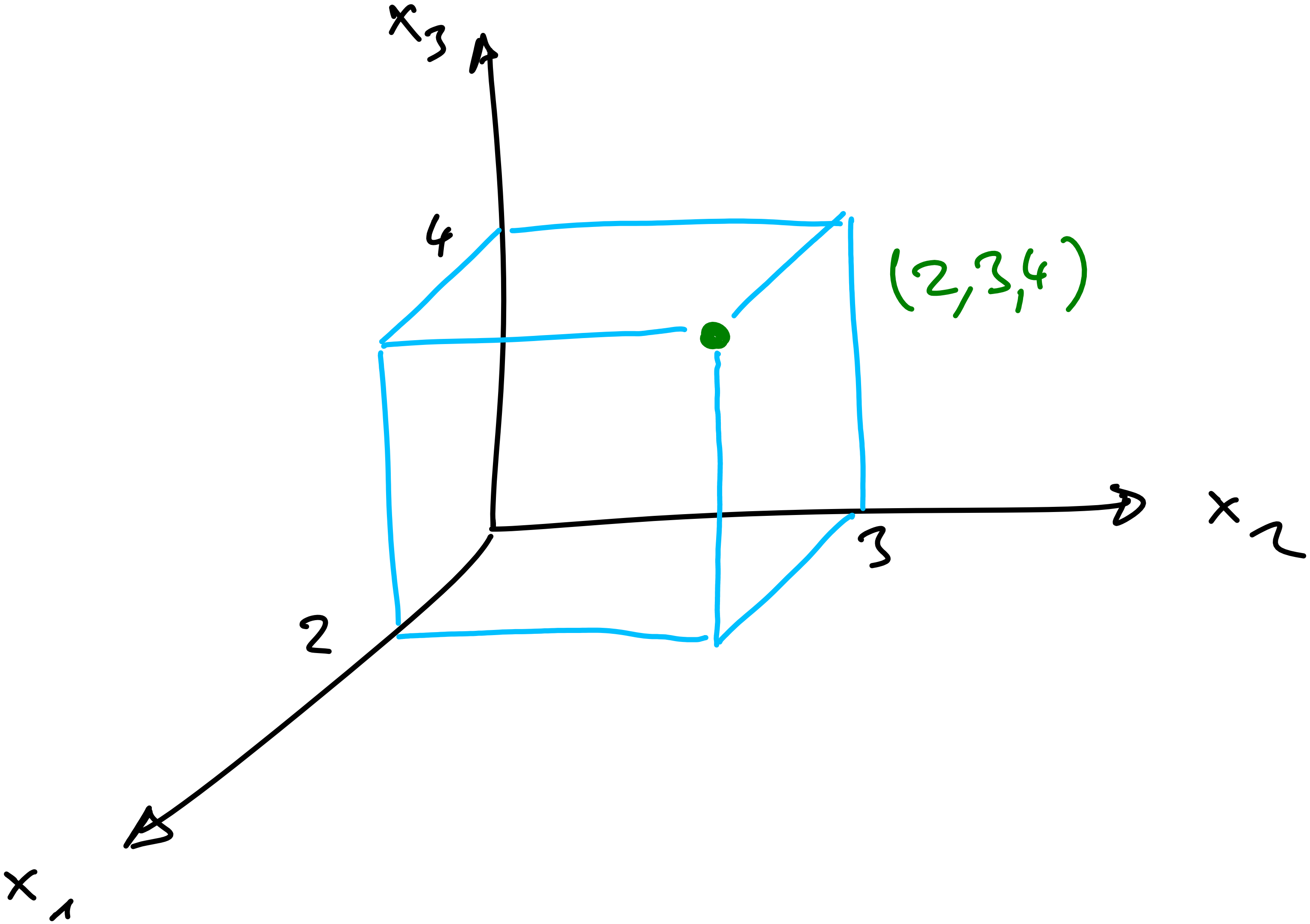
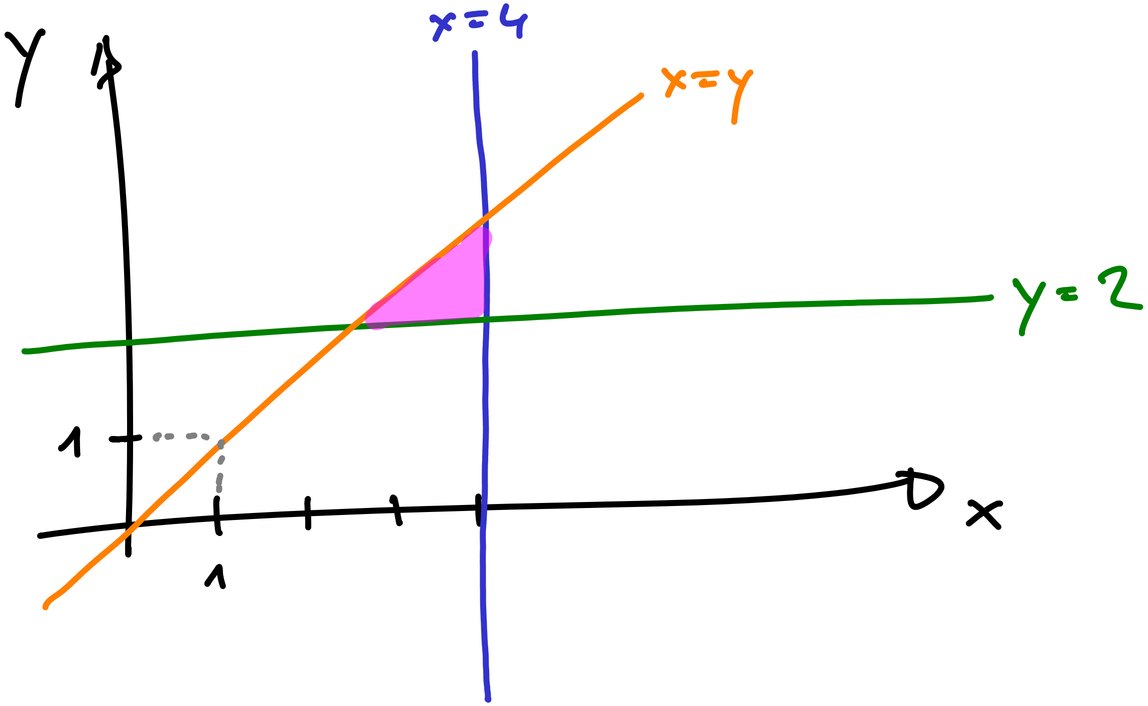
Übungsgruppeneinteilung → **Nr.** !

Webforum



x_2
1
(4, 1)
4
x_1


x_3
4
(2,3,4)
x_2
3
2
x_1



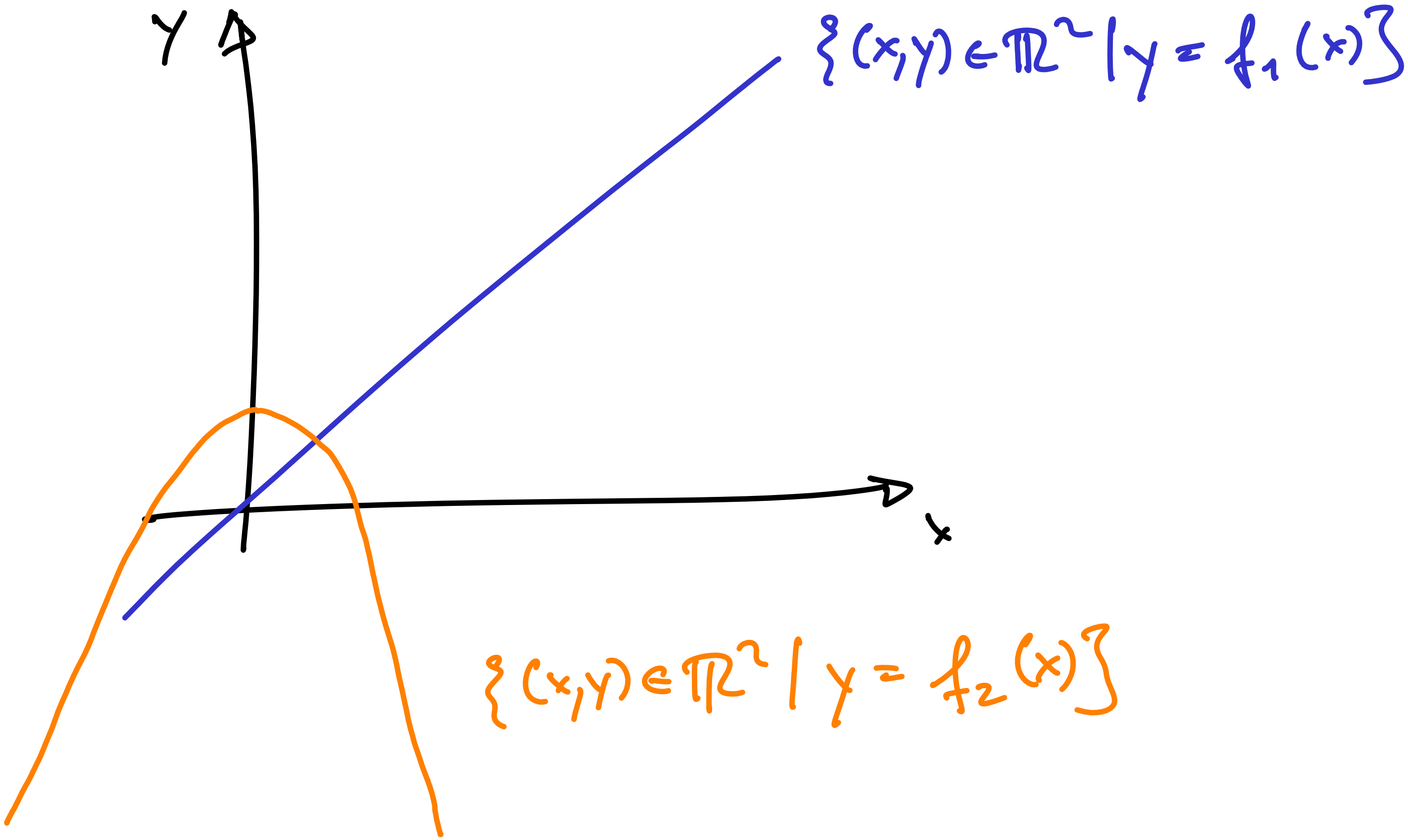
$\{(x,y) \in \mathbb{R}^2 \mid x = 4\}$, $\{(x,y) \in \mathbb{R}^2 \mid y = 2\}$

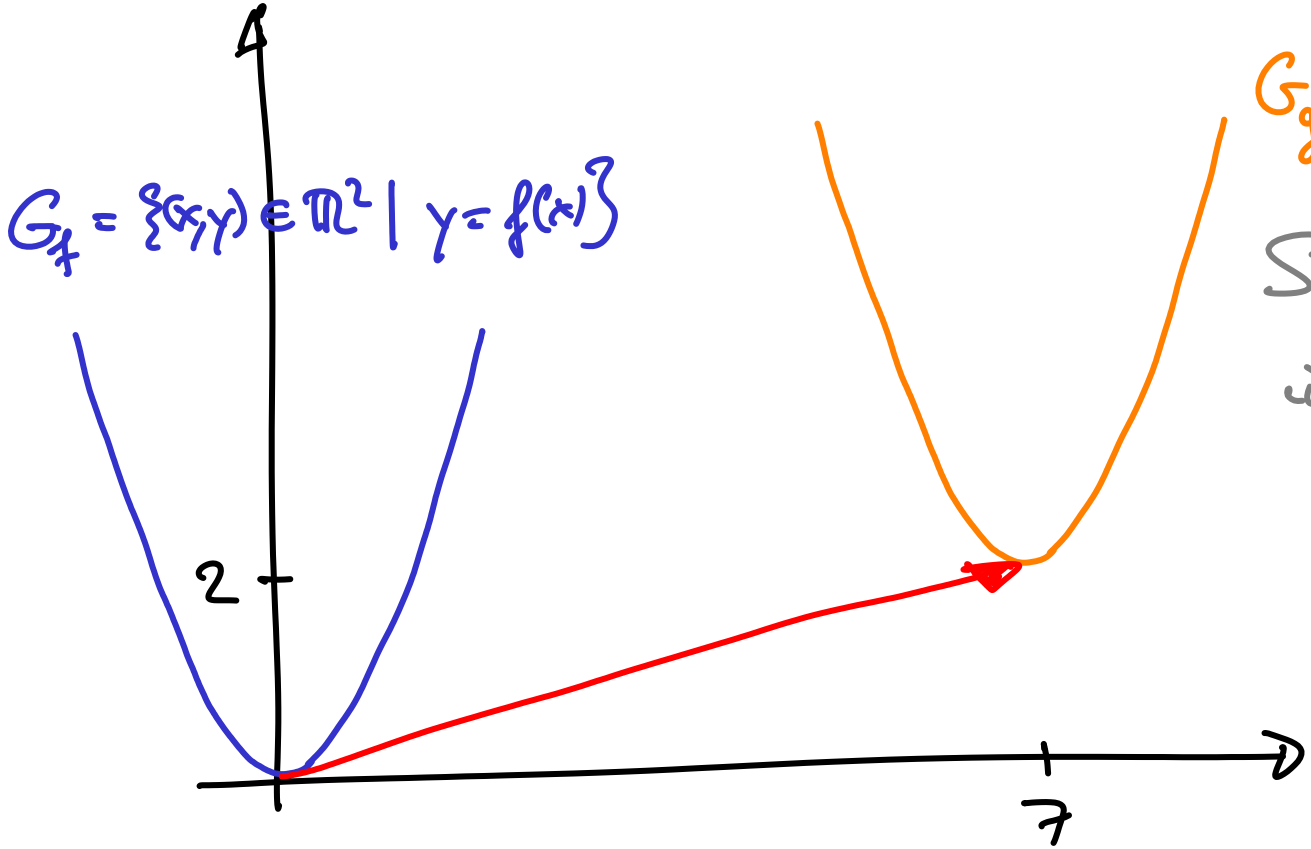
$\{(x,y) \in \mathbb{R}^2 \mid x = y\}$

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

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

$f_1(x) = x, \quad f_2(x) = 1 - x^2$





Sei f bekannt, was ist g?

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

ein Bsp. $u=7$, $v=2$

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

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

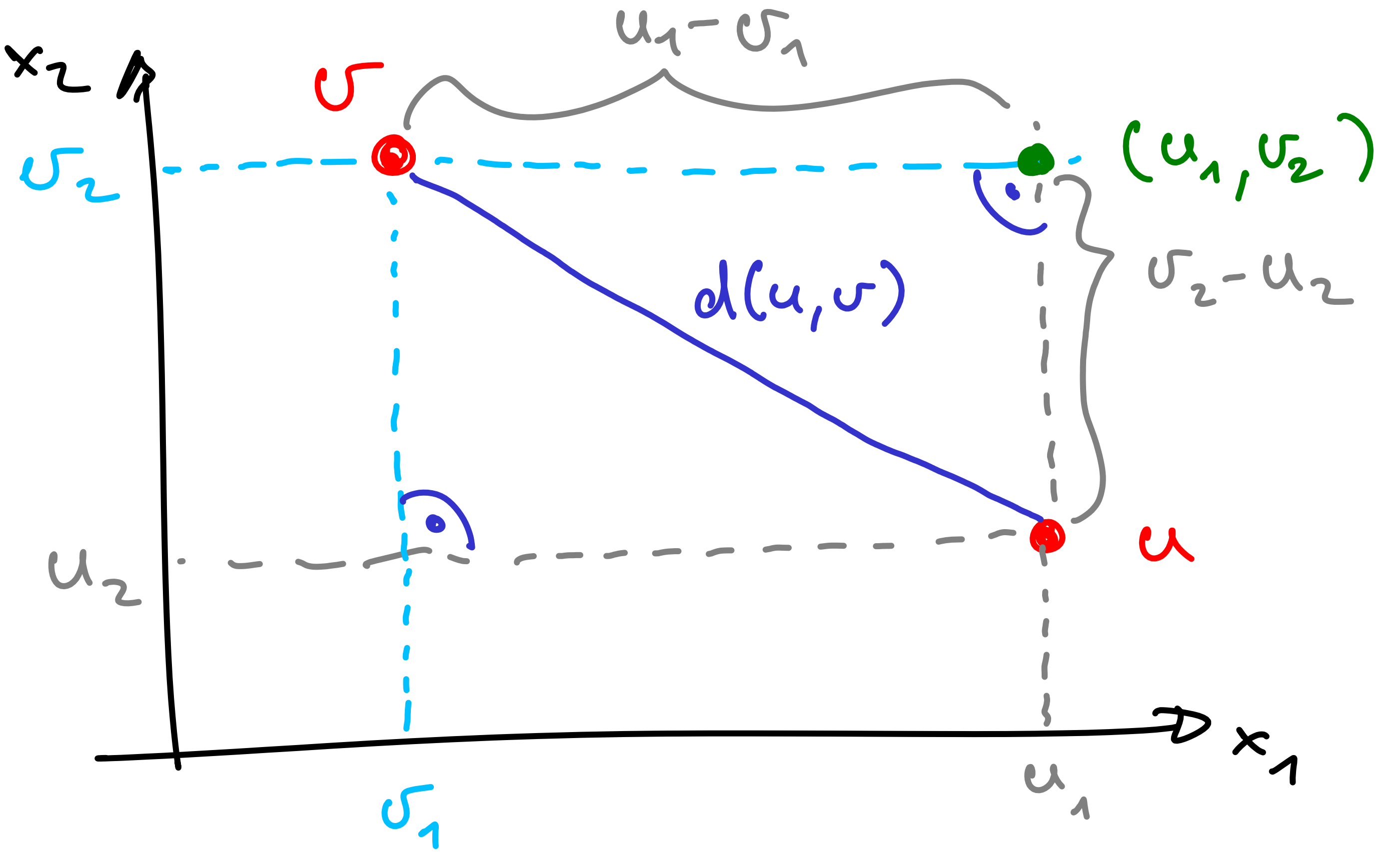
$$= \{(\tilde{x},\tilde{y}) \in \mathbb{R}^2 \mid \tilde{y} - v = f(\tilde{x} - u)\}$$

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

nenne $\tilde{x}$ um wieder x, analog für $\tilde{y}$

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

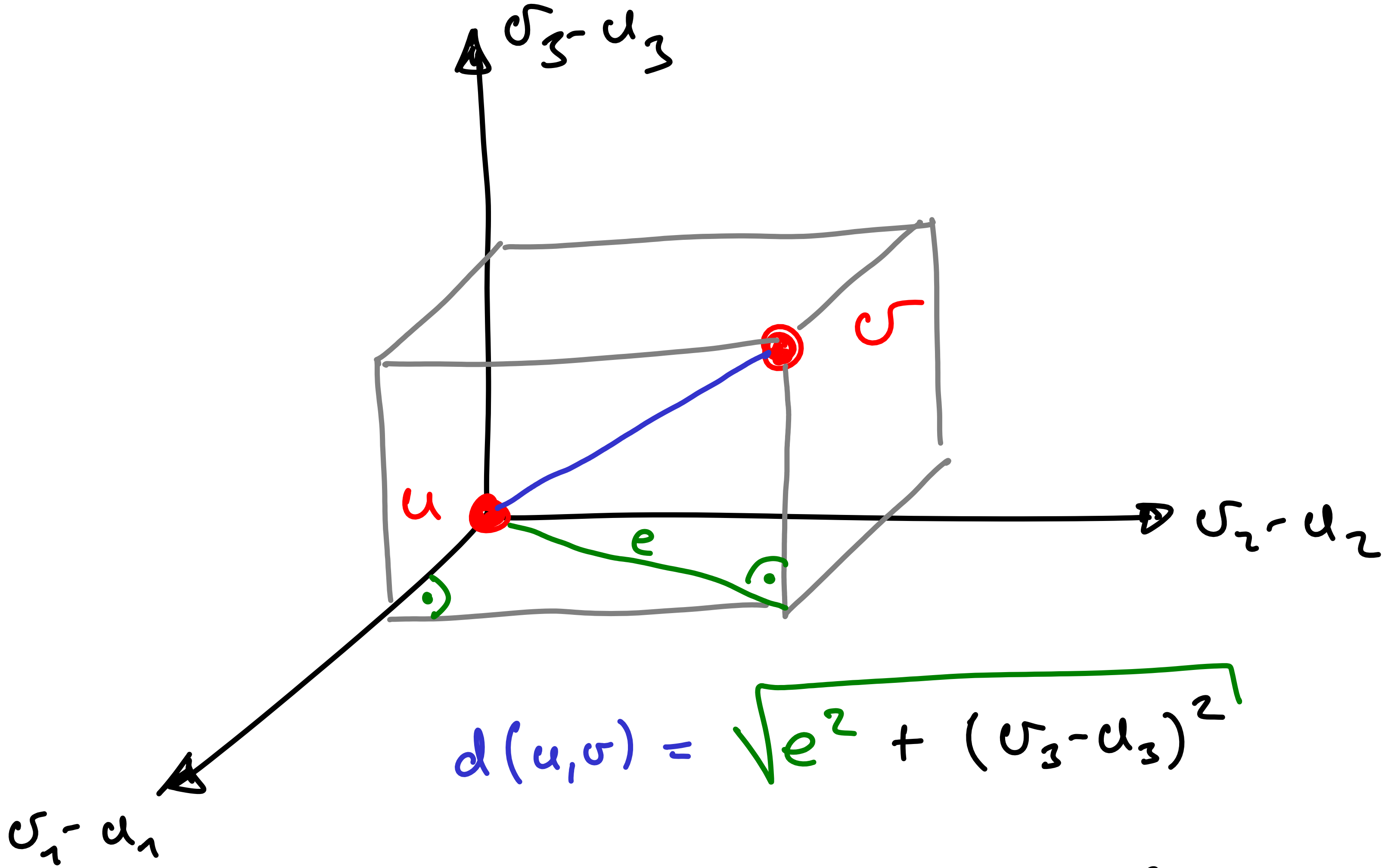
$= G_g$ mit $g(x) = f(x-u) + v$



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

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

$\big(d(u,v) = d(v,u) \big)$, $d : \mathbb{R}^4 \rightarrow \mathbb{R}$



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

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

Erklärung für Bergmannsche Regel

Wärmeverlust proportional zur Oberfläche O

Wärmeproduktion proportional zum Volumen V

Quotient

$$\frac{O}{V} \xrightarrow{\text{zentr. Streckung}} \frac{\alpha^2 O}{\alpha^3 V} = \frac{1}{\alpha} \frac{O}{V}$$

$(x,y,z) \longmapsto (\alpha x, \alpha y, \alpha z)$

$\alpha > 1$

$\frac{1}{\alpha} < 1$