

$$\begin{cases} \text{Funktion} \\ \text{Gebiet} \end{cases} \quad \begin{cases} \text{Min} & \text{wo} \\ \text{Max} & \text{wo} \end{cases}$$

$$\begin{cases} 3xy \\ x^2 + y^2 \leq 2 \end{cases} \quad \begin{cases} -3 & (-1:1):(1:-1) \\ 3 & (1:1):(-1:-1) \end{cases}$$

$$^{xy}\eta = 3xy \Rightarrow {}^x\eta = 3y = 0 = {}^y\eta = 3x \Rightarrow x = 0 = y \Rightarrow {}^{00}\eta = 0$$

$$x^2 + y^2 = 2 \Rightarrow {}^{xy}\eta = 3xy = 3x\sqrt{2-x^2} = {}^x\eta$$

$$\begin{aligned} \Rightarrow {}^x\eta &= 3\sqrt{2-x^2} + 3x \frac{-2x}{2\sqrt{2-x^2}} = \frac{3(2-x^2) - 3x^2}{\sqrt{2-x^2}} = \frac{6(1-x^2)}{\sqrt{2-x^2}} = 0 \\ &\Rightarrow x = \pm 1 \Rightarrow y = \pm 1 \end{aligned}$$

$$\begin{cases} (x-2)y \\ (x-1)^2 + y^2 \leq 1 \end{cases}$$

$$\begin{cases} x^2 - 3xy + y^2 \\ y \geq 0: \overline{x} + y \leq 1 \end{cases}$$

$$\begin{cases} x^2 + xy + y^2 \\ x \geq 0: x + \overline{y} \leq 1 \end{cases} \quad \begin{cases} 0 & (0:0) \\ 1 & (0:1) (0:-1) (1:0) \end{cases}$$

$$\begin{cases} x^2 - xy + y^2 \\ \overline{x} + \overline{y} \leq 1 \end{cases}$$

$$\begin{cases} x^2 + y - 2x + 2y^2 \\ \text{conv } (-1:0) (1:0) (0:1) \end{cases} \quad \begin{cases} -1 & (:1) 0 \\ 3 & (-1:0) (0:1) \end{cases}$$

$$\begin{cases} x^2 + y^2 - 2x \\ \text{conv } (-2:0) (1:3) (4:0) \end{cases}$$

$$\begin{cases} 3x^2y - 3xy - x^2 \\ \text{conv } (0:0) (2:0) (0:1) \end{cases} \quad \begin{cases} -4 & (2:0) \\ 0 & (0:y) \end{cases}$$

$$\begin{cases} x^3y^2(x+y-1) \\ \text{conv } (0:0) (0:1) (1:0) \end{cases} \quad \begin{cases} -\frac{1}{432} & \left(\frac{1}{2}:\frac{1}{3}\right) \\ 0 & \end{cases}$$

$$\left\{ \begin{array}{l} xy(4-x-y) \\ \text{Rand } x=1:y=0:x+y=6 \end{array} \right.$$

$$\left\{ \begin{array}{l} x^2y(2-x-y) \\ \text{Rand } x=1:y=0:x+y=1 \end{array} \right.$$

$$\left\{ \begin{array}{l} 8-\sqrt{x^2-y^2} \\ \text{Rand } y=x:y=-x:x=1 \end{array} \right. \quad \left\{ \begin{array}{l} 7 \quad (1:0) \\ 8 \quad y=x:y=-x \end{array} \right.$$

$$\left\{ \begin{array}{l} x^2+y^2-xy+x+y \\ \text{Rand } x=0:y=0:x+y=3 \end{array} \right. \quad \left\{ \begin{array}{l} 0 \quad (0:0) \\ 12 \quad (3:0) \, (0:3) \end{array} \right.$$

$$\left\{ \begin{array}{l} x^3+y^3-3xy \\ 0\leq x\leq 2:-1\leq y\leq 2 \end{array} \right.$$

$$\left\{ \begin{array}{l} x^3+8y^3-6xy+1 \\ 0\leq x\leq 2:-1\leq y\leq 1 \end{array} \right. \quad \left\{ \begin{array}{l} 1 \quad x=0 \\ 9+5\sqrt{2} \quad (2:-1/\sqrt{2}) \end{array} \right.$$

$$\left\{ \begin{array}{l} x^3+y^2-6xy-48x \\ 1\leq x\leq 2:0\leq y\leq 4 \end{array} \right.$$