Grafické znázornění množin bodů

Příklad 1. Graficky znázorněte množiny M, jestliže

a) $M = \{[x, y] \in \mathbb{R}^2 : 1 \leq x^2 + y^2 \leq 4, |x| \leq y\}$

b) $M = \{[x, y] \in \mathbb{R}^2 : x^2 - 2x + 1 + 2y^2 + 4y = 0\}$

c) $M = \{[x, y] \in \mathbb{R}^2 : 0 \leq xy \leq 3, 1 \leq y \leq 2\}$

d) $M = \{[x, y] \in \mathbb{R}^2 : x + y \leq 2, x \geq 0, y \geq 0\}$

e) $M = \left\{[x, y, z] \in \mathbb{R}^3 : z = \sqrt{x^2 + y^2}, z \leq 1\right\}$

f) $M = \{[x, y, z] \in \mathbb{R}^3 : x + 2y + 3z = 6, x \geq 0, y \geq 0, z \geq 0\}$

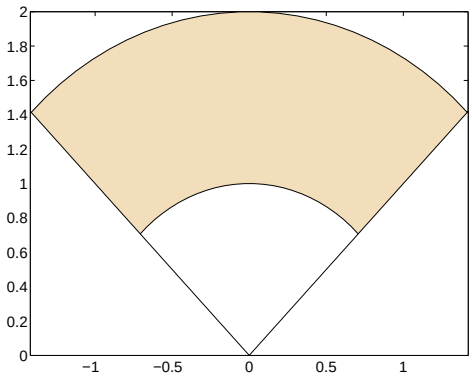
g) $M = \{[x, y, z] \in \mathbb{R}^3 : x^2 + y^2 + z^2 = 4, |z| \leq 1\}$

h) $M = \{[x, y, z] \in \mathbb{R}^3 : x^2 + z^2 - 2z = 0, 1 \leq y \leq 5\}$

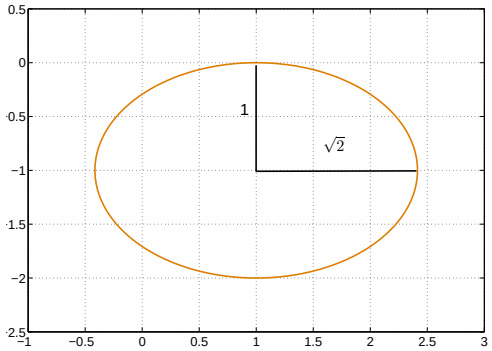
i) $M = \{[x, y, z] \in \mathbb{R}^3 : x^2 + y^2 \leq 1, z = 9 - x^2 - y^2\}$

j) $M = \{[x, y, z] \in \mathbb{R}^3 : x^2 + y^2 \leq 1, x^2 + y^2 + z^2 = 9, z \geq 0\}$

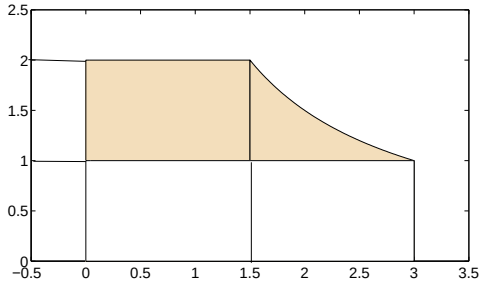
k) $M = \{[x, y, z] \in \mathbb{R}^3 : x^2 - 2x + 4y^2 + 4z^2 = 3\}$



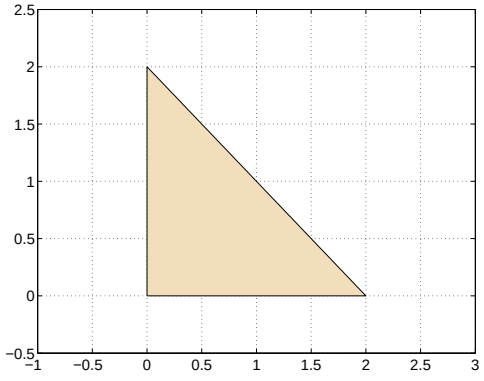
a) Část mezikruží



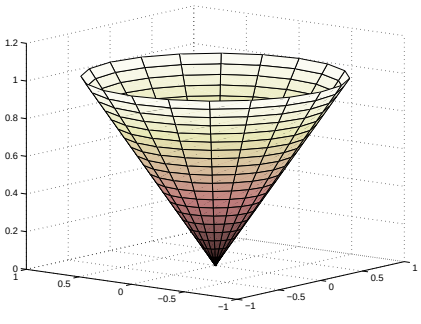
b) Elipsa se středem $[1, -1]$.



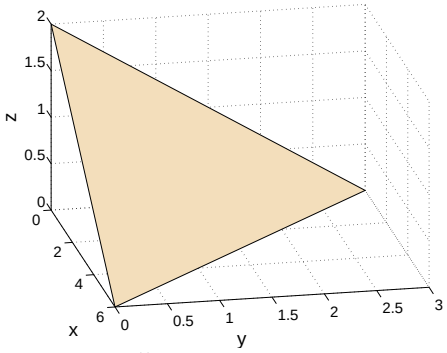
c)



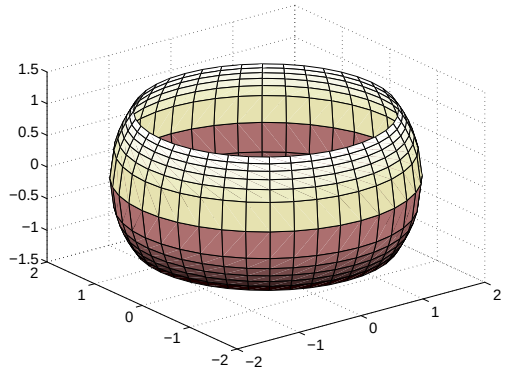
d) Trojúhelník s vrcholy $[0, 0]$, $[2, 0]$ a $[0, 2]$.



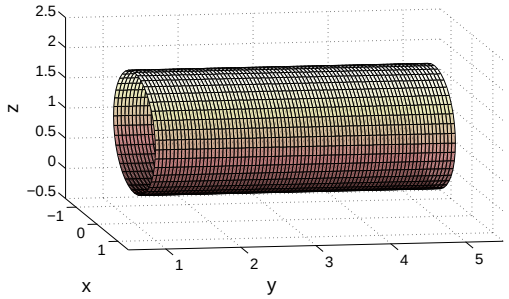
e) Kužel s vrcholem v počátku a výškou 1



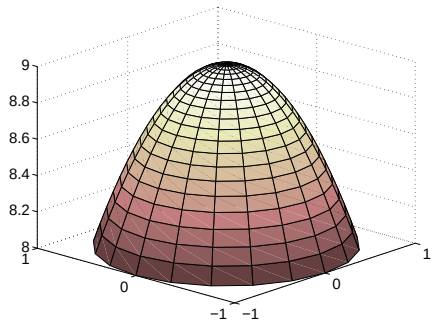
f) Část roviny.



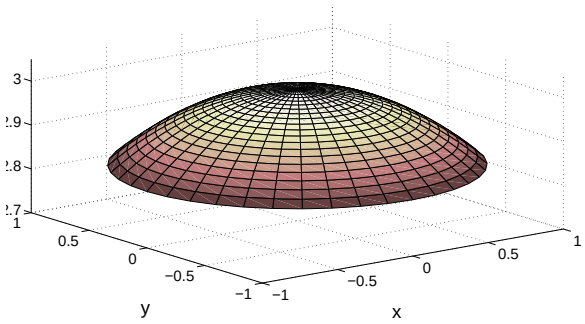
g) Část kulové plochy



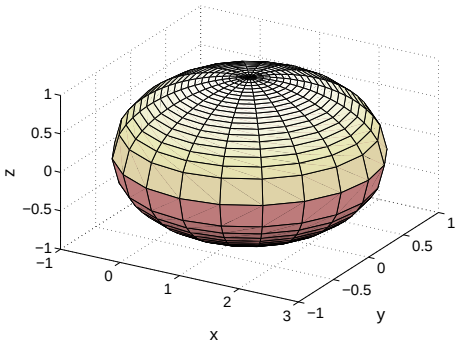
h) Část válcové plochy.



i) Část paraboloidu s vrcholem v bodě $[9, 0, 0]$ a výškou 1.



j) Část kulové plochy



k) Elipsoid se středem $[1, 0, 0]$ a délkami poloos 2, 1 a 1.