

FUNKCE DVOU PROMĚNNÝCH – PŘÍKLADY

definiční obor

Příklad 1. Zakreslete body v rovině, které splňují danou rovnost:

a) $3x - y = 0$

c) $2y + 4x + 2 = 0$

e) $(x - 1)^2 + y^2 - 1 = 0$

b) $x^2 + y^2 - 4 = 0$

d) $y + x^2 - 2 = 0$

f) $y^2 - x = 0$

Příklad 2. Zakreslete body v rovině, které splňují danou nerovnost:

a) $3x - y < 0$

d) $x^2 + y^2 - 4 \geq 0$

g) $x + 1 > 0$

b) $3x - y \geq 0$

e) $y + x^2 - 2 > 0$

h) $y^2 - x \geq 0$

c) $x^2 + y^2 - 4 < 0$

f) $y + x^2 - 2 \leq 0$

i) $(x - 1)^2 + y^2 - 1 \leq 0$

Příklad 3. Zakreslete body v rovině, které splňují dané podmínky:

a) $3x - y < 0 \wedge x^2 + y^2 - 4 \geq 0$

b) $2y + 4x + 2 > 0 \wedge x + 1 > 0$

c) $y + x^2 - 2 \leq 0 \wedge y - 1 \geq 0$

Příklad 4. Zapište podmínky a znázorněte graficky definiční obor funkcí:

a) $f(x, y) = \sqrt{1 + 2x - y}$

d) $f(x, y) = \frac{10}{\sqrt{9 - x^2 - y^2}}$

b) $f(x, y) = \frac{1}{\ln(x + y)}$

e) $f(x, y) = \sqrt{y^2 - 2x}$

c) $f(x, y) = y \ln xy$

f) $f(x, y) = \frac{x - \sqrt{x + 1}}{y^2 - y}$

Příklad 5. Zapište podmínky a znázorněte graficky definiční obor funkcí:

a) $f(x, y) = \ln(x + y) - \sqrt{9 - x^2 - y^2}$

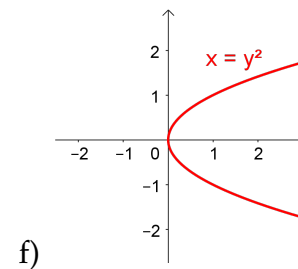
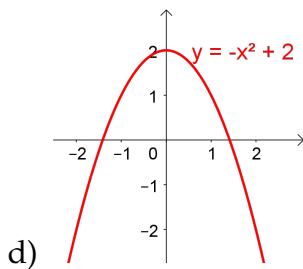
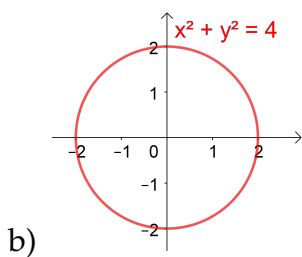
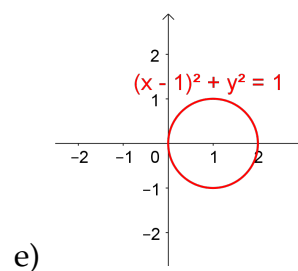
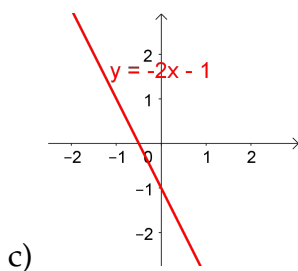
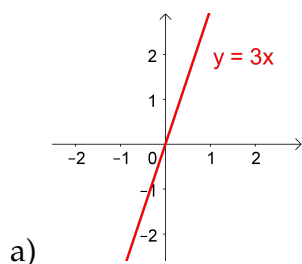
c) $f(x, y) = \sqrt{4 - y^2} - \sqrt{x^2 - 1}$

b) $f(x, y) = \frac{x}{x^2 - y} + \sqrt{e^x}$

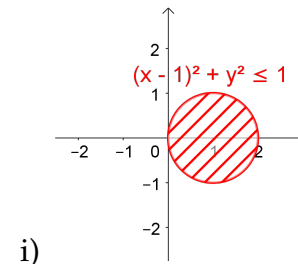
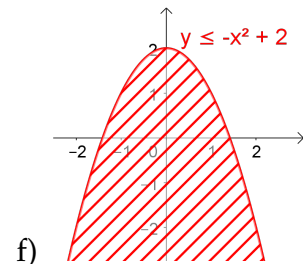
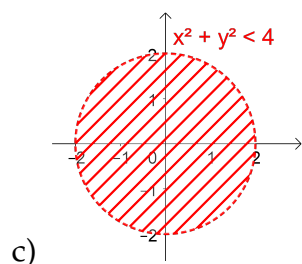
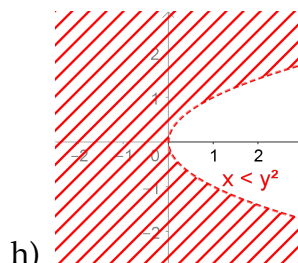
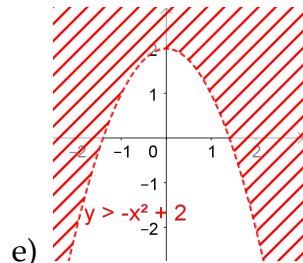
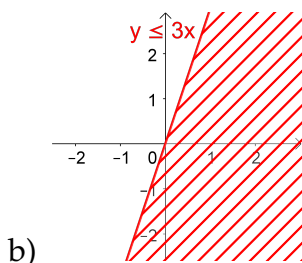
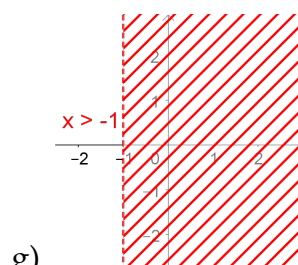
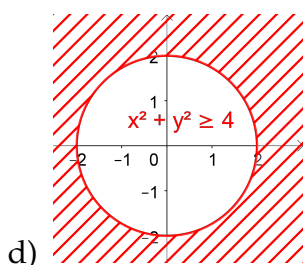
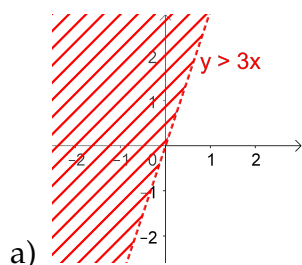
d) $f(x, y) = \arcsin \frac{x + y}{2}$

VÝSLEDKY

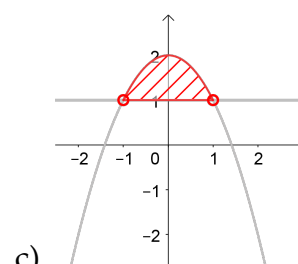
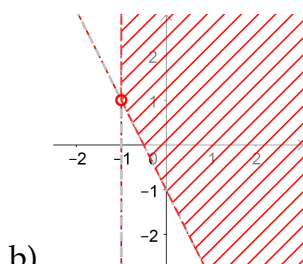
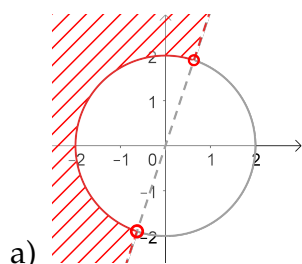
1.



2.

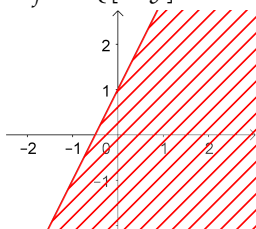


3.

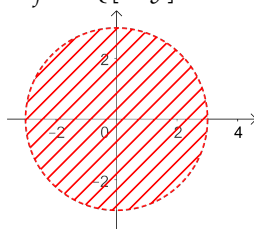


4.

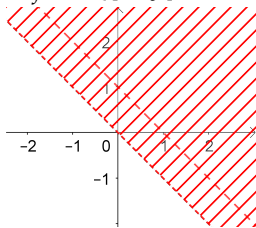
a) $D_f = \{[x, y] \in \mathbb{R}^2; y \leq 2x + 1\}$



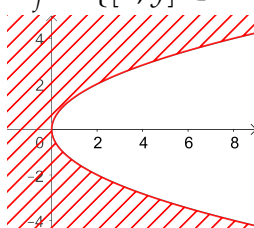
d) $D_f = \{[x, y] \in \mathbb{R}^2; x^2 + y^2 < 9\}$



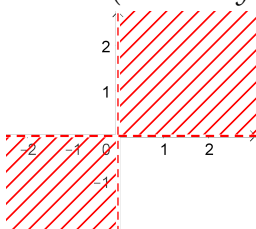
b) $D_f = \{[x, y] \in \mathbb{R}^2; y > -x \wedge y \neq 1 - x\}$



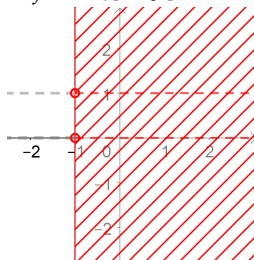
e) $D_f = \{[x, y] \in \mathbb{R}^2; x \leq \frac{1}{2}y^2\}$



c) $D_f = \{[x, y] \in \mathbb{R}^2; (x > 0 \wedge y > 0) \vee (x < 0 \wedge y < 0)\}$

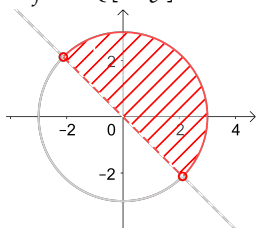


f) $D_f = \{[x, y] \in \mathbb{R}^2; x \geq -1 \wedge y \neq 0 \wedge y \neq 1\}$

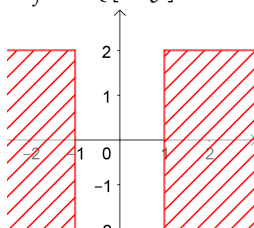


5.

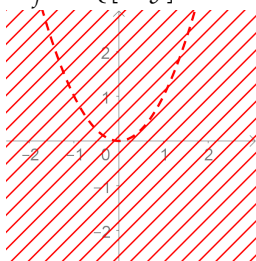
a) $D_f = \{[x, y] \in \mathbb{R}^2; y > -x \wedge x^2 + y^2 \leq 9\}$



c) $D_f = \{[x, y] \in \mathbb{R}^2; |y| \leq 2 \wedge |x| \geq 1\}$



b) $D_f = \{[x, y] \in \mathbb{R}^2; y \neq x^2\}$



d) $D_f = \{[x, y] \in \mathbb{R}^2; -x - 2 \leq y \leq -x + 2\}$

