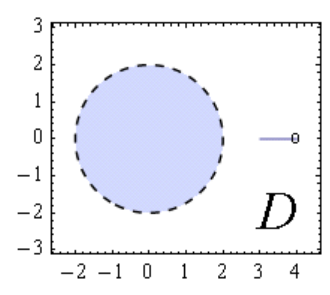
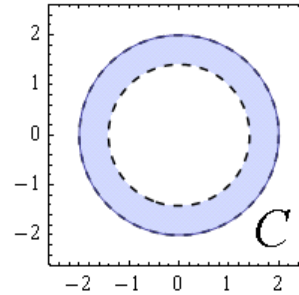
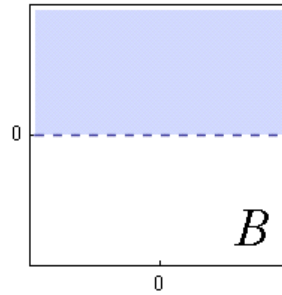
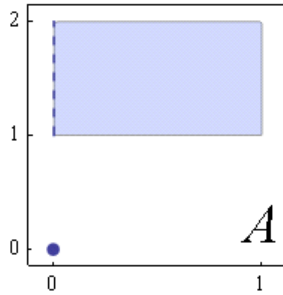
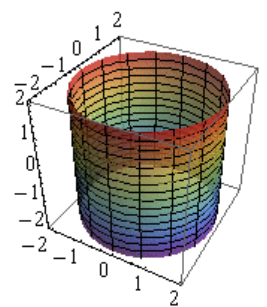
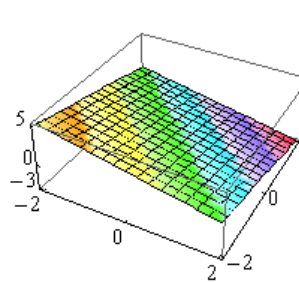
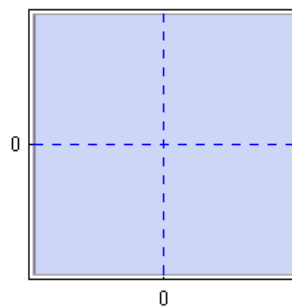
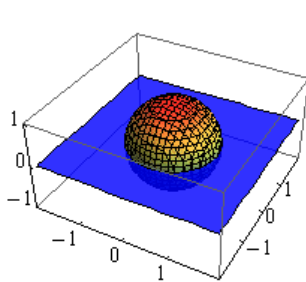


# 1.

## Exercício 1.1

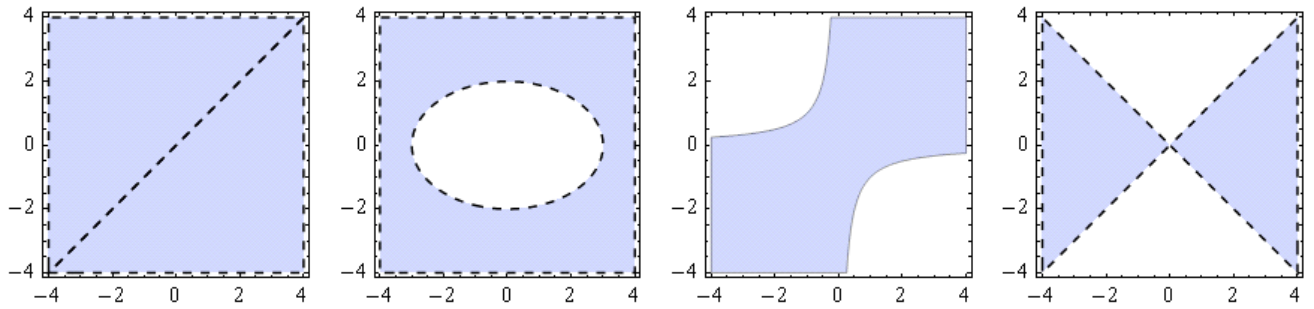


	A	B	C	D
Interior	$(0,1) \times (1,2)$	B	$\{(x, y) \in \mathbb{R}^2 : 2 < x^2 + y^2 < 4\}$	$\{(x, y) \in \mathbb{R}^2 : x^2 + y^2 < 4\}$
Aderência	$[0,1] \times [1,2] \cup \{(0,0)\}$	$\mathbb{R} \times \mathbb{R}_0^+$	$\{(x, y) \in \mathbb{R}^2 : 2 \leq x^2 + y^2 \leq 4\}$	$\{(x, y) \in \mathbb{R}^2 : x^2 + y^2 \leq 4\} \cup \{(x, 0) \in \mathbb{R}^2 : 3 \leq x \leq 4\}$
Derivado	$[0,1] \times [1,2]$	$\mathbb{R} \times \mathbb{R}_0^+$	$\{(x, y) \in \mathbb{R}^2 : 2 \leq x^2 + y^2 \leq 4\}$	$\{(x, y) \in \mathbb{R}^2 : x^2 + y^2 \leq 4\} \cup \{(x, 0) \in \mathbb{R}^2 : 3 \leq x \leq 4\}$
Fronteira	$[0,1] \times \{1,2\} \cup \{0,1\} \times [1,2] \cup \{(0,0)\}$	$\mathbb{R} \times \{0\}$	$\{(x, y) \in \mathbb{R}^2 : x^2 + y^2 = 2 \vee x^2 + y^2 = 4\}$	$\{(x, y) \in \mathbb{R}^2 : x^2 + y^2 = 4\} \cup \{(x, 0) \in \mathbb{R}^2 : 3 \leq x \leq 4\}$
Pts isolados?	$\{(0,0)\}$	Não	Não	Não
Aberto?	Não	Sim	Não	Não
Fechado?	Não	Não	Não	Não
Limitado?	Sim	Não	Sim	Sim



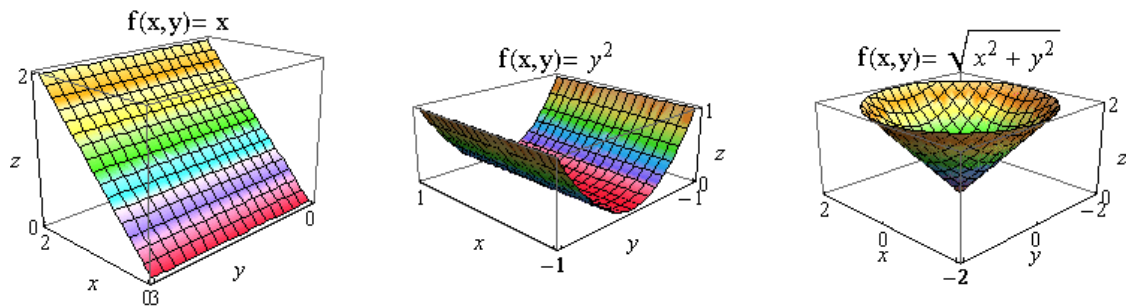
	E	F	G	H
Interior	$\{(x, y, z) \in \mathbb{R}^3 : x^2 + y^2 + z^2 < 1\}$	F	$\emptyset$	$\emptyset$
Aderência	E	$\mathbb{R}^2$	G	H
Derivado	E	$\mathbb{R}^2$	G	H
Fronteira	$\{(x, y, z) \in \mathbb{R}^3 : x^2 + y^2 + z^2 = 1\} \cup \{(x, y, 0) \in \mathbb{R}^3 : x^2 + y^2 \geq 1\}$	$\mathbb{R} \times \{(0,0)\} \cup \{(0,0)\} \times \mathbb{R}$	G	H
Pts isolados?	Não	Não	Não	Não
Aberto?	Não	Sim	Não	Não
Fechado?	Sim	Não	Sim	Sim
Limitado?	Não	Não	Não	Não

### Exercício 1.2

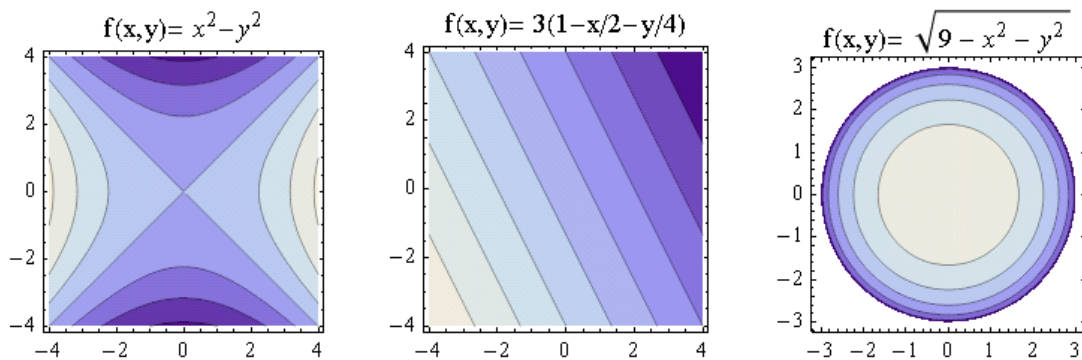


- a)  $D_f = \{(x, y) \in \mathbb{R}^2 : x \neq y\}$   
 $D_f = \{(x, y) \in \mathbb{R}^2 : x^2 - y^2 > 0\}$
- b)  $D_f = \{(x, y) \in \mathbb{R}^2 : \frac{x^2}{9} + \frac{y^2}{4} \geq 1\}$
- c)  $D_f = \{(x, y) \in \mathbb{R}^2 : xy > -1\}$
- d)

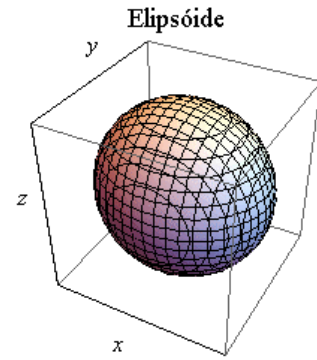
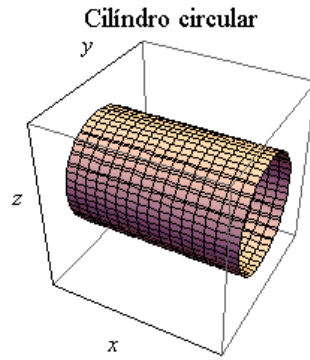
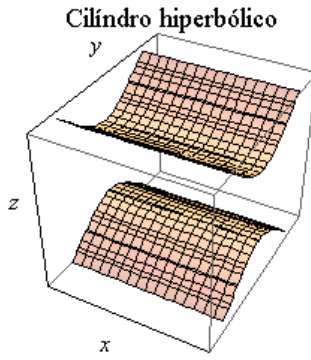
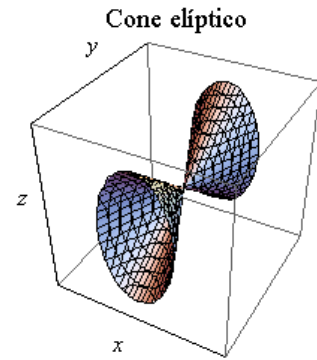
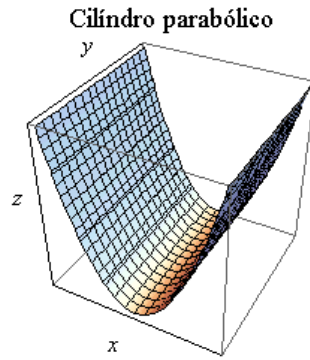
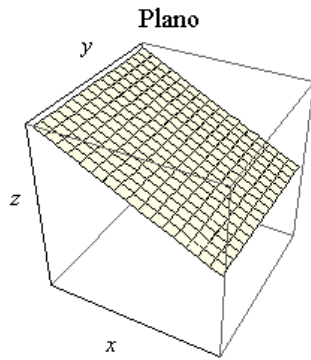
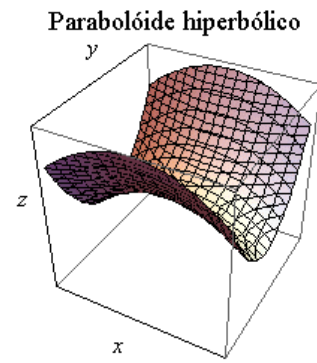
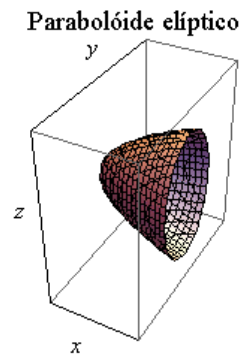
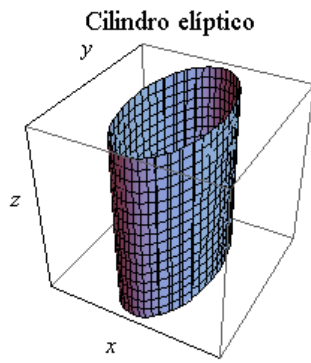
### Exercício 1.3



### Exercício 1.4



### Exercício 1.5



### Exercício 1.6

- a)  $Df = \mathbb{R}$ ;    b)  $Dg = (-\infty, -1[ \cup ]1, +\infty[ ) \times \mathbb{R}$ ;    c)  $Dh = \mathbb{R} \times [1, +\infty[ \times ]-\infty, 5]$ ;    d)  $Dr = \mathbb{R}^+ \setminus \{1\}$ .