

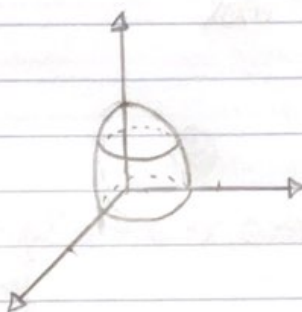
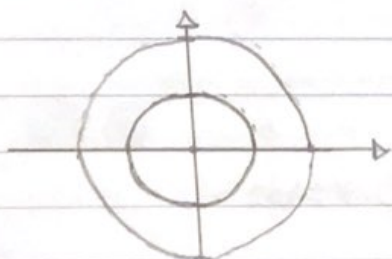
Questões 1 (escolher 3 alternativas)

5

12

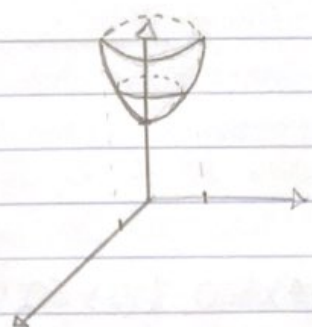
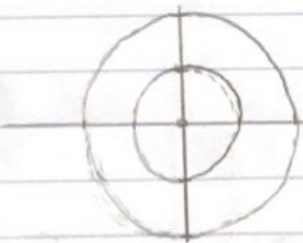
14

① ① $f(x,y) = 1 - x^2 - y^2$



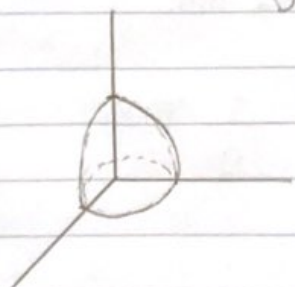
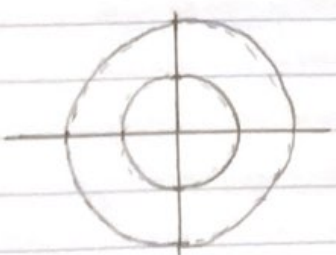
$D_f = \{(x,y) \in \mathbb{R}^2\}$

② $f(x,y) = 1 + x^2 + y^2$



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

③ $G(x,y) = \sqrt{1 - x^2 - y^2}$



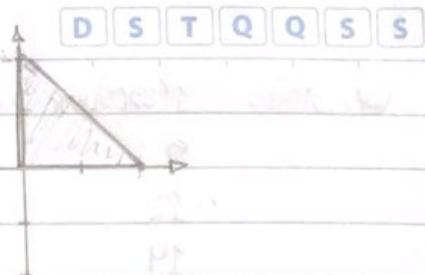
$D_f = \{(x,y) \in \mathbb{R}^2 / (x^2 + y^2) \leq 1\}$

⑤ a) $f(x,y) = 2x + y + 3$

$A = \{(x,y) \in \mathbb{R}^2 / x \geq 0, y \geq 0, y \leq 2\}$

$f(0,0) = 2 \cdot 0 + 0 + 3 = 3 \text{ min}$

$f(2,0) = 2 \cdot 2 + 0 + 3 = 7 \text{ max}$

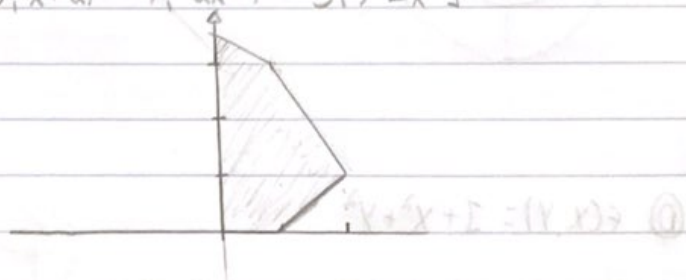


⑥ $f(x,y) = x + y$

$A = \{(x,y) \in \mathbb{R}^2 / x \geq 0, y \geq 0, x + 2y \leq 7, 2x + y \leq 5, y \geq x - 1\}$

$f(0,0) = 0 + 0 = 0 \text{ min}$

$f(1,3) = 1 + 3 = 4 \text{ max}$

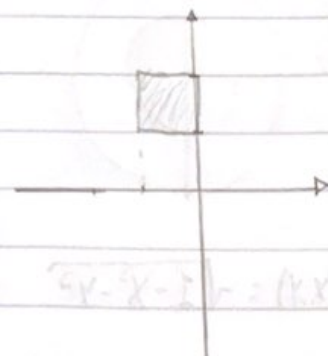


⑦ $f(x,y) = \frac{y}{x-1}$

$A = \{(x,y) \in \mathbb{R}^2 / -1 \leq x \leq 0, 1 \leq y \leq 2\}$

$f(0,2) = \frac{2}{0-1} = -2 \text{ min}$

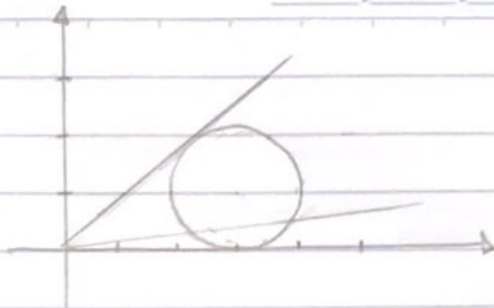
$f(-1,1) = \frac{1}{-1-1} = -\frac{1}{2} \text{ max}$



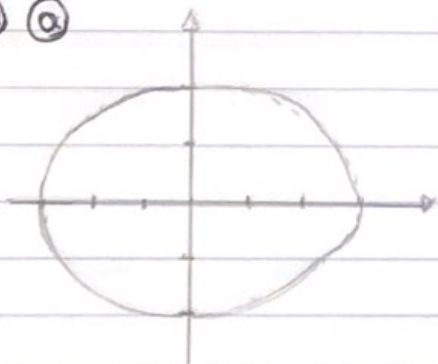
$$\textcircled{D} f(x,y) = \frac{y}{x-1}$$

$$A = \{(x,y) \in \mathbb{R}^2 / (x-3)^2 + (y-1)^2 \leq 1\}$$

$$f(3,0) = \frac{0}{3-1} = 0$$



12 a



13 b

14) Acredito que não, uma curva de nível representada em \mathbb{R}^2 , muitas vezes pode haver de se encontrar, porém se pensarmos que cada curva de nível tem um z diferente, podemos notar que sua altitude pode mudar, desenhando a Gráfica em \mathbb{R}^3 conseguimos ver melhor que cada curva de nível fica em seu nível, sem interceptar outra.