*PÁGINA 445 DO LIVRO MATEMÁTICA APLICADA À ECONOMIA E ADMINISTRAÇÃO (LOUIS LEITHOLD, EDITORA HARBRA)

10.2 FUNÇÕES DE MAIS DE UMA VARIÁVEL*

1.A $f(x,y) = 3x + 2y - 5$ $\quad f(3,-1) = 3(3) + 2(-1) - 5$

$= 9 - 2 - 5$

$= 9 - 7$

$= 2$

1.B $f(x,y) = 3x + 2y - 5$ $\quad f(-4,2) = 3(-4) + 2(2) - 5$

$= -12 + 4 - 5$

$= -8 - 5$

$= -13$

1.C $f(x,y) = 3x + 2y - 5$ $\quad f(a+1, b-2) = 3(a+1) + 2(b-2) - 5$

$= 3a + 3 + 2b - 4 - 5$

$= 3a + 2b - 6$

1.D $f(x,y) = 3x + 2y - 5$ $\quad f(x+1, y-2) = 3(x+1) + 2(y-2) - 5$

$= 3x + 3 + 2y - 4 - 5$

$= 3x + 2y - 6$

1.E $f(x,y) = 3x + 2y - 5$ $\quad f(2x, 3y) = 3(2x) + 2(3y) - 5$

$= 6x + 6y - 5$

1.F $f(x,y) = 3x + 2y - 5$ $\quad f(x+h, y) - f(x,y) = 3(x+h) + 2y - 5 - (3x + 2y - 5)$

$= \cancel{3x} + 3h + \cancel{2y} - \cancel{5} - \cancel{3x} - \cancel{2y} + \cancel{5}$

$= 3h$

1.G $f(x,y) = 3x + 2y - 5$ $\quad f(x, y+h) - f(x,y) = 3x + 2(y+h) - 5 - (3x + 2y - 5)$

$= \cancel{3x} + \cancel{2y} + 2h - \cancel{5} - \cancel{3x} - \cancel{2y} + \cancel{5}$

$= 2h$

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2.A $g(x,y)=x^2-3y+5$ $\quad g(-2,3)=(-2)^2-3(3)+5$

$=4-9+5$

$=-5+5$

$=0$

2.B $g(x,y)=x^2-3y+5$ $\quad g(4,7)=(4)^2-3(7)+5$

$=16-21+5$

$=-5+5$

$=0$

2.C $g(x,y)=x^2-3y+5$ $\quad g(4R,25)=(4R)^2-3(25)+5$

$=16R^2-65+5$

2.D $g(x,y)=x^2-3y+5$ $\quad g(4x,2y)=(4x)^2-3(2y)+5$

$=16x^2-6y+5$

2.E $g(x,y)=x^2-3y+5$ $\quad g(x-2,2-y)=(x-2)^2-3(2-y)+5$

$=x^2-4x+4-6+3y+5$

$=x^2-4x+3y+3$

2.F $g(x,y)=x^2-3y+5$ $\quad g(x+a,y)-g(x,y)=(x+a)^2-3y+5-(x^2-3y+5)$

$=\cancel{x^2}+2xa+a^2\cancel{-3y}+\cancel{5}\cancel{-x^2}+\cancel{3y}-\cancel{5}$

$=2xa+a^2$

$=a(2x+a)$

2.G $g(x,y)=x^2-3y+5$ $\quad g(x,y+a)-g(x,y)=x^2-3(y+a)+5-(x^2-3y+5)$

$=\cancel{x^2}\cancel{-3y}-3a+\cancel{5}\cancel{-x^2}+\cancel{3y}-\cancel{5}$

$=-3a$

3.A $f(x,y) = \frac{x+y}{x-y}$ $\quad f(-3,4) = \frac{-3+4}{-3-4}$

$= \frac{1}{-7} = -\frac{1}{7}$

3.B $f(x,y) = \frac{x+y}{x-y}$ $\quad f(x^2,y^2) = \frac{x^2+y^2}{x^2-y^2}$

3.C $f(x,y) = \frac{x+y}{x-y}$ $\quad [f(x,y)]^2 = \frac{[x+y]^2}{[x-y]^2}$

$= \frac{x^2+2xy+y^2}{x^2-2xy+y^2}$

3.D $f(x,y) = \frac{x+y}{x-y}$ $\quad f(-x,y) - f(x,-y) = \frac{-x+y}{-x-y} - \left(\frac{x-y}{x-(-y)}\right)$

$= \frac{-x+y}{-x-y} - \left(\frac{x-y}{x+y}\right)$

PERGUNTAR SOBRE MUDANÇA DE SINAL

$= \frac{-x+y}{-x-y} - \frac{x+y}{-x-y}$

$= 2\left(\frac{-x+y}{-x-y}\right) = -2\left(\frac{x-y}{x+y}\right)$

3.E $f(x,y) = \frac{x+y}{x-y}$ $\quad x-y \neq 0$ $\quad D = \{(x,y) \in \mathbb{R}^2 / x \neq y\}$

$x \neq y$ PERGUNTAR SE O DOMÍNIO ESTÁ CERTO.

4.A $g(x,y) = \sqrt{x^2+y^2-25}$ $\quad g(-4,3) = \sqrt{(-4)^2+(3)^2-25}$

$= \sqrt{16+9-25}$

$= \sqrt{25-25}$

$= \sqrt{0}$

$= 0$

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4.B $g(x,y)=\sqrt{x^2+y^2-25}$ $\quad g(10,-5)=\sqrt{(10)^2+(-5)^2-25}$

$=\sqrt{100+25-25}$

$=\sqrt{100}$

$=10$

4.C $g(x,y)=\sqrt{x^2+y^2-25}$ $\quad g(x^2,y^2)=\sqrt{(x^2)^2+(y^2)^2-25}$

$=\sqrt{x^4+y^4-25}$

4.D $g(x,y)=\sqrt{x^2+y^2-25}$ $\quad [g(x,y)]^2=\left(\sqrt{x^2+y^2-25}\right)^2$

$=x^2+y^2-25$

4.E $g(x,y)=\sqrt{x^2+y^2-25}$ $\quad g(-x,y)-g(x,-y)=\sqrt{(-x)^2+y^2-25}-\left(\sqrt{x^2+(-y)^2-25}\right)$

$=\sqrt{x^2+y^2-25}-\left(\sqrt{x^2+y^2-25}\right)$

$=\sqrt{x^2+y^2-25}-\sqrt{x^2+y^2-25}$

$=0$

4.F $g(x,y)=\sqrt{x^2+y^2-25}$ $\quad x^2+y^2-25\geq 0$ $\quad x^2+y^2-25=0$

$x^2+y^2\geq 25$ $\quad x^2+y^2=25$

$D=\{(x,y)\in\mathbb{R}^2 \mid x^2+y^2\geq 25\}$

4.G $Im=\mathbb{R}_+$

5.A $g(x,y,z)=\sqrt{4-x^2-y^2-z^2}$

$g(1,-1,-1)=\sqrt{4-(1)^2-(-1)^2-(-1)^2}$

$=\sqrt{4-(1)-(1)-(1)}$

$=\sqrt{4-1-1-1}$

$=\sqrt{4-3}$

$=\sqrt{1}=1$

3.B $g(x,y,z) = \sqrt{4-x^2-y^2-z^2}$

$g\left(-a, 2b, \frac{1}{2}c\right) = \sqrt{4-(-a)^2-(2b)^2-\left(\frac{1}{2}c\right)^2}$

$= \sqrt{4-(a^2)-(4b^2)-\left(\frac{1}{4}c^2\right)}$

$= \sqrt{4-a^2-4b^2-\frac{1}{4}c^2}$

$= \sqrt{\frac{16-4a^2-16b^2-c^2}{4}}$ POSSO TIRAR TUDO DA RAIZ?

$= \frac{4-2a-4b-c}{2}$

3.C $g(x,y,z) = \sqrt{4-x^2-y^2-z^2}$

$g(y,-x,-y) = \sqrt{4-(y)^2-(-x)^2-(-y)^2}$

$= \sqrt{4-(y^2)-(x^2)-(y^2)}$

$= \sqrt{4-y^2-x^2-y^2}$

$= \sqrt{4-x^2-2y^2}$

3.D $g(x,y,z) = \sqrt{4-x^2-y^2-z^2}$

$[g(x,y,z)]^2 - [g(x+2,y+2,z)]^2 = \left(\sqrt{4-x^2-y^2-z^2}\right)^2 - \left(\sqrt{4-(x+2)^2-(y+2)^2-(z)^2}\right)^2$

$= 4-x^2-y^2-z^2-(4-(x^2+4x+4)-(y^2+4y+4)-z^2)$

$= 4-x^2-y^2-z^2-(\cancel{4}-x^2-4x-\cancel{4}-y^2-4y-4-z^2)$

$= 4-x^2-y^2-z^2-(-x^2-4x-y^2-4y-4-z^2)$

$= 4-\cancel{x^2}-\cancel{y^2}-\cancel{z^2}+\cancel{x^2}+4x+\cancel{y^2}+4y+4+\cancel{z^2}$

$= 4+4x+4y+4$

$= 4x+4y+8$

$= 4(x+y+2)$

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5.E $g(x,y,z)=\sqrt{5-x^2-y^2-z^2}$

$5-x^2-y^2-z^2\geq 0$

$x^2+y^2+z^2\leq 5$

$5-x^2-y^2-z^2=0$

$-x^2-y^2-z^2=-5 \quad (-1)$

$x^2+y^2+z^2=5$

$D=\{(x,y,z)\in\mathbb{R}^3 / x^2+y^2+z^2\leq 5\}$

5.F $Im=\mathbb{R}_+$

6.A $f(x,y,z)=\dfrac{x+y+z}{x-y+z}$

$f(1,-1,1)=\dfrac{1+(-1)+1}{1-(-1)+1}$

$=\dfrac{\cancel{1}-\cancel{1}+1}{1+1+1}$

$=\dfrac{1}{3}$

6.B $f(x,y,z)=\dfrac{x+y+z}{x-y+z}$

$f(-3,2,-5)=\dfrac{-3+2+(-5)}{-3-2+(-5)}$

$=\dfrac{-3+2-5}{-3-2-5}$

$=\dfrac{-6}{-10}$

$=\dfrac{\cancel{6}^{3}}{\cancel{10}_{5}}=\dfrac{3}{5}$

6.C $f(x,y,z)=\dfrac{x+y+z}{x-y+z}$

$f(-y,z,-x)=\dfrac{-y+z-x}{-y-z-x}=\dfrac{-1(x+y-z)}{-1(x+y+z)}=\dfrac{x+y-z}{x+y+z}$

6.D $f(x,y,z)=\dfrac{x+y+z}{x-y+z}$

$f(R^2,2RS,S^2)=\dfrac{R^2+2RS+S^2}{R^2-2RS+S^2}=\dfrac{(R+S)^2}{(R-S)^2}$

6.E $x-y+z\neq 0$

$D=\{(x,y,z)\in\mathbb{R}^3 / x-y+z\neq 0\}$

7) $f(x,y) = \sqrt{16 - x^2 - y^2}$

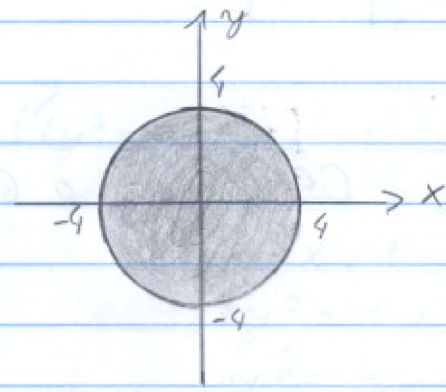
$16 - x^2 - y^2 \geq 0$

$x^2 + y^2 \leq 16$

$16 - x^2 - y^2 = 0$

$-x^2 - y^2 = -16 \quad (-1)$

$x^2 + y^2 = 16$



8) $f(x,y) = \dfrac{\sqrt{16 - x^2 - y^2}}{x}$

$16 - x^2 - y^2 \geq 0$

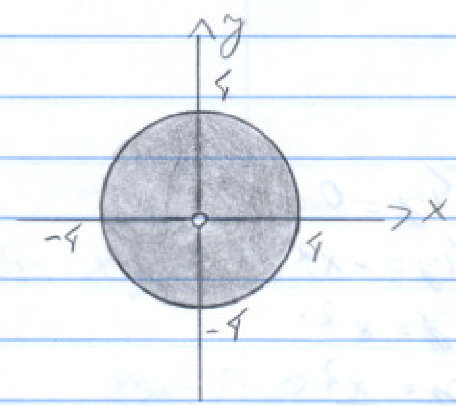
$x^2 + y^2 \leq 16$

$16 - x^2 - y^2 = 0$

$-x^2 - y^2 = -16 \quad (-1)$

$x^2 + y^2 = 16$

$x \neq 0$



O PONTO X=0 ESTÁ CERTO

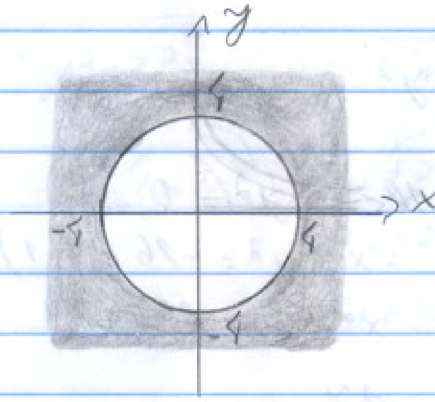
9) $f(x,y) = \sqrt{x^2 + y^2 - 16}$

$x^2 + y^2 - 16 \geq 0$

$x^2 + y^2 \geq 16$

$x^2 + y^2 - 16 = 0$

$x^2 + y^2 = 16$

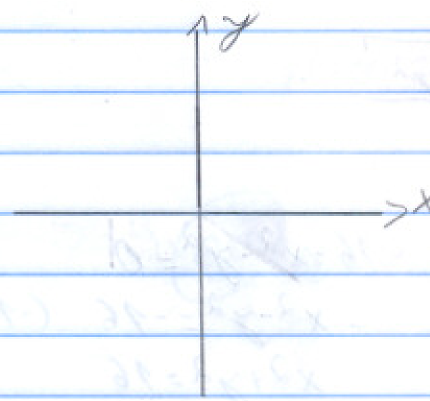


10) $f(x,y) = \dfrac{x^2 - y^2}{x - y}$

COMO FAZ O GRÁFICO

$x - y \neq 0$

$x \neq y$



11) $f(x,y) = \ln(x^2 - 4y)$

$x^2 - 4y > 0$

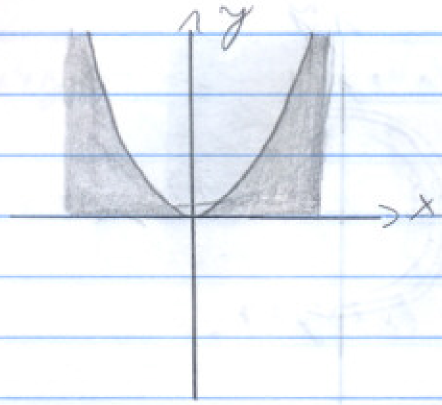
$y < \dfrac{x^2}{4}$

$x^2 - 4y = 0$

$-4y = -x^2 \quad (-1)$

$4y = x^2$

$y = \dfrac{x^2}{4}$



(12) $f(x,y) = \ln(4y^2 - x)$

$4y^2 - x > 0$

$y > \frac{\sqrt{x}}{2}$

$x \geq 0$

$4y^2 - x = 0$

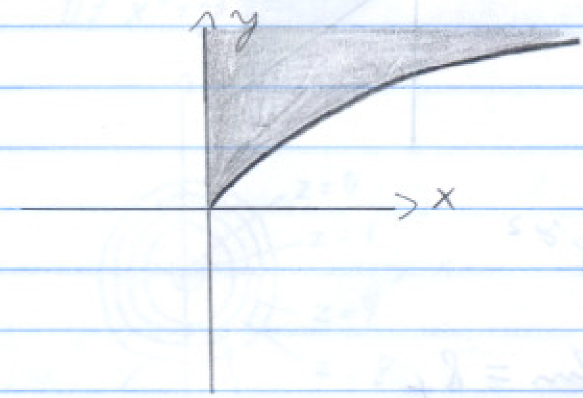
$4y^2 = x$

$y^2 = \frac{x}{4}$

$y = \sqrt{\frac{x}{4}}$

$y = \frac{\sqrt{x}}{\sqrt{4}}$

$y = \frac{\sqrt{x}}{2}$



(13) $f(x,y) = \ln(xy - 1)$

$xy - 1 > 0$

$y > \frac{1}{x}$

$xy - 1 = 0$

$xy = 1$

$y = \frac{1}{x}$

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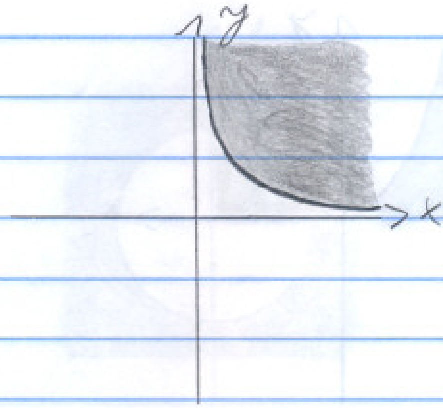
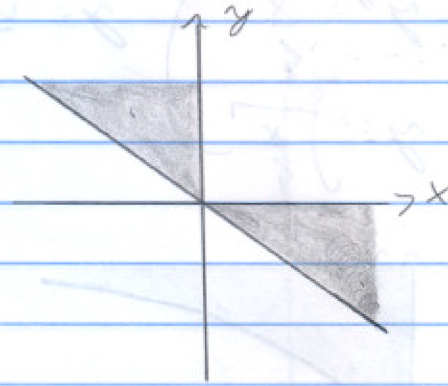


(14) $f(x,y) = \sqrt{x+y}$

$x + y \geq 0$ $\qquad$ $x + y = 0$

$y \geq -x$ $\qquad$ $y = -x$



(15) $g(x,y,z) = |x| e^{y^2}$

$D = R$ $\qquad$ $Im = R_+$

(16) $h(x,y,z) = \ln(x^2 + y^2 + z^2 - 1)$

$x^2 + y^2 + z^2 - 1 > 0$ $\qquad$ $x^2 + y^2 + z^2 - 1 = 0$

$x^2 + y^2 + z^2 > 1$ $\qquad$ $x^2 + y^2 + z^2 = 1$

$D = \{(x,y,z) \in \mathbb{R}^3 \,/\, x^2 + y^2 + z^2 > 1\}$

$Im = (-\infty, +\infty)$

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17 $f(x,y) = 4x^2 + 4y^2$

$f(x,y) = K$

$K = 4x^2 + 4y^2$

$K = 4(x^2 + y^2)$

$16 = 4(x^2+y^2)$ $\quad$ $12 = 4(x^2+y^2)$ $\quad$ $8 = 4(x^2+y^2)$ $\quad$ $4 = 4(x^2+y^2)$

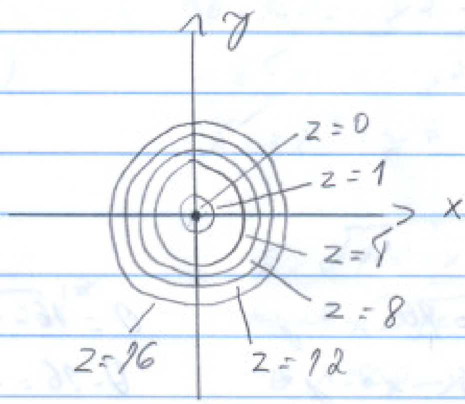
$\frac{16}{4} = x^2+y^2$ $\quad$ $\frac{12}{4} = x^2+y^2$ $\quad$ $\frac{8}{4} = x^2+y^2$ $\quad$ $\frac{4}{4} = x^2+y^2$

$4 = x^2+y^2$ $\quad$ $3 = x^2+y^2$ $\quad$ $2 = x^2+y^2$ $\quad$ $1 = x^2+y^2$

$1 = 4(x^2+y^2)$ $\quad$ $0 = 4(x^2+y^2)$

$\frac{1}{4} = x^2+y^2$ $\quad$ $\frac{0}{4} = x^2+y^2$

$0 = x^2+y^2$



Z = 0 ESTA CERTO?

18 $f(x,y) = \frac{1}{4}(x^2+y^2)$

$f(x,y) = K$

$K = \frac{1}{4}(x^2+y^2)$

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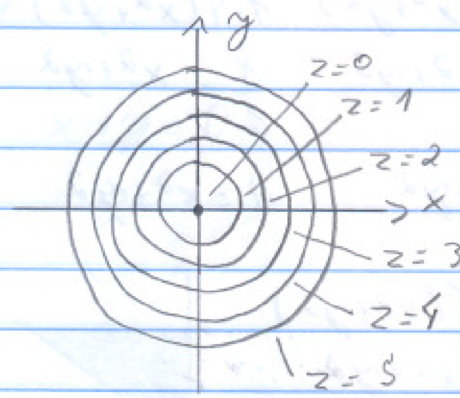
$5 = \frac{1}{4}(x^2+y^2)$ $4 = \frac{1}{4}(x^2+y^2)$ $3 = \frac{1}{4}(x^2+y^2)$ $2 = \frac{1}{4}(x^2+y^2)$

$20 = x^2+y^2$ $16 = x^2+y^2$ $12 = x^2+y^2$ $8 = x^2+y^2$

$1 = \frac{1}{4}(x^2+y^2)$ $0 = \frac{1}{4}(x^2+y^2)$

$4 = x^2+y^2$ $0 = x^2+y^2$



z=0 ESTÁ CERTO?

(19) $f(x,y) = 16-x^2-y^2$

$f(x,y) = K$

$K = 16-x^2-y^2$

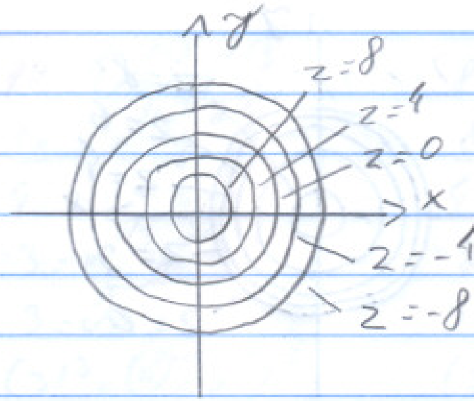
$8 = 16-x^2-y^2$
$8-16 = -x^2-y^2$
$-8 = -x^2-y^2 \; (-1)$
$8 = x^2+y^2$

$4 = 16-x^2-y^2$
$4-16 = -x^2-y^2$
$-12 = -x^2-y^2 \; (-1)$
$12 = x^2+y^2$

$0 = 16-x^2-y^2$
$0-16 = -x^2-y^2$
$-16 = -x^2-y^2 \; (-1)$
$16 = x^2+y^2$

$-4 = 16-x^2-y^2$
$-4-16 = -x^2-y^2$
$-20 = -x^2-y^2 \; (-1)$
$20 = x^2+y^2$

$-8 = 16-x^2-y^2$
$-8-16 = -x^2-y^2$
$-24 = -x^2-y^2 \; (-1)$
$24 = x^2+y^2$



20 $f(x,y)=\sqrt{100-x^2-y^2}$

$f(x,y)=k$

$k=\sqrt{100-x^2-y^2}$

$8=\sqrt{100-x^2-y^2}$
$(8)^2=(\sqrt{100-x^2-y^2})^2$
$64=100-x^2-y^2$
$64-100=-x^2-y^2$
$-36=-x^2-y^2\,(-1)$
$36=x^2+y^2$

$6=\sqrt{100-x^2-y^2}$
$(6)^2=(\sqrt{100-x^2-y^2})^2$
$36=100-x^2-y^2$
$36-100=-x^2-y^2$
$-64=-x^2-y^2\,(-1)$
$64=x^2+y^2$

$4=\sqrt{100-x^2-y^2}$
$(4)^2=(\sqrt{100-x^2-y^2})^2$
$16=100-x^2-y^2$
$16-100=-x^2-y^2$
$-84=-x^2-y^2\,(-1)$
$84=x^2+y^2$

$2=\sqrt{100-x^2-y^2}$
$(2)^2=(\sqrt{100-x^2-y^2})^2$
$4=100-x^2-y^2$
$4-100=-x^2-y^2$
$-96=-x^2-y^2\,(-1)$
$96=x^2+y^2$

$0=\sqrt{100-x^2-y^2}$
$(0)^2=(\sqrt{100-x^2-y^2})^2$
$0=100-x^2-y^2$
$0-100=-x^2-y^2$
$-100=-x^2-y^2\,(-1)$
$100=x^2+y^2$

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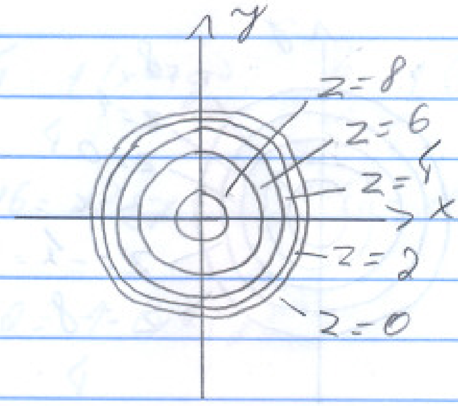


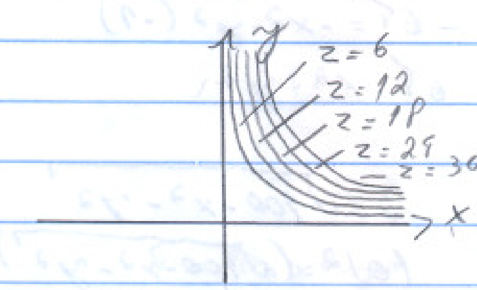
21 $f(x,y) = 6xy$

$f(x,y) = K$

$K = 6xy$

$30 = 6xy$	$24 = 6xy$	$18 = 6xy$	$12 = 6xy$	$6 = 6xy$
$\frac{30}{6} = xy$	$\frac{24}{6} = xy$	$\frac{18}{6} = xy$	$\frac{12}{6} = xy$	$\frac{6}{6} = xy$
$5 = xy$	$4 = xy$	$3 = xy$	$2 = xy$	$1 = xy$

$x = \frac{1}{y}$



22 $f(x,y) = 4x^{1/3}y^{2/3}$

$f(x,y) = K$

$K = 4x^{1/3}y^{2/3}$

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$16 = 4x^{1/3}y^{2/3}$

$\frac{16}{4} = x^{1/3}y^{2/3}$

$4 = x^{1/3}y^{2/3}$

$4 = \sqrt[3]{xy^2}$

$(4)^3 = (\sqrt[3]{xy^2})^3$

$64 = xy^2$

$12 = 4x^{1/3}y^{2/3}$

$\frac{12}{4} = x^{1/3}y^{2/3}$

$3 = x^{1/3}y^{2/3}$

$3 = \sqrt[3]{xy^2}$

$(3)^3 = (\sqrt[3]{xy^2})^3$

$27 = xy^2$

$8 = 4x^{1/3}y^{2/3}$

$\frac{8}{4} = x^{1/3}y^{2/3}$

$2 = x^{1/3}y^{2/3}$

$2 = \sqrt[3]{xy^2}$

$(2)^3 = (\sqrt[3]{xy^2})^3$

$8 = xy^2$

$4 = 4x^{1/3}y^{2/3}$

$\frac{4}{4} = x^{1/3}y^{2/3}$

$1 = x^{1/3}y^{2/3}$

$1 = \sqrt[3]{xy^2}$

$(1)^3 = (\sqrt[3]{xy^2})^3$

$1 = xy^2$

$2 = 4x^{1/3}y^{2/3}$

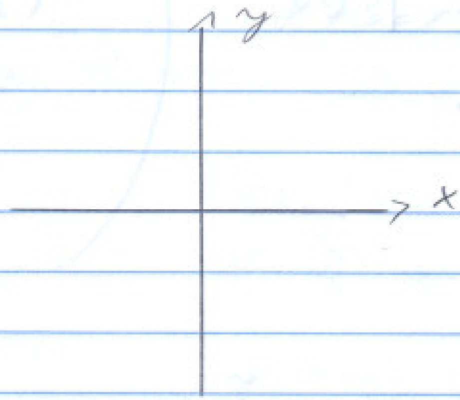
$\frac{\cancel{2}^{1}}{\cancel{4}_{2}} = x^{1/3}y^{2/3}$

$\frac{1}{2} = x^{1/2}y^{2/3}$

$\frac{1}{2} = \sqrt[3]{xy^2}$

$\left(\frac{1}{2}\right)^3 = (\sqrt[3]{xy^2})^3$

$\frac{1}{8} = xy^2$



COMO FAZ O GRÁFICO?

23 $f(x,y) = 2x^2 + 2y^2$

$f(x,y) = K$

$K = 2x^2 + 2y^2$

$K = 2(x^2 + y^2)$

$12 = 2(x^2+y^2)$ $\quad$ $8 = 2(x^2+y^2)$ $\quad$ $4 = 2(x^2+y^2)$ $\quad$ $2 = 2(x^2+y^2)$

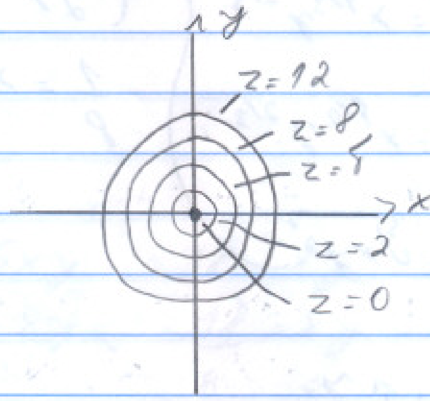
$\frac{12}{2} = x^2+y^2$ $\quad$ $\frac{8}{2} = x^2+y^2$ $\quad$ $\frac{4}{2} = x^2+y^2$ $\quad$ $\frac{2}{2} = x^2+y^2$

$6 = x^2+y^2$ $\quad$ $4 = x^2+y^2$ $\quad$ $2 = x^2+y^2$ $\quad$ $1 = x^2+y^2$

$0 = 2(x^2+y^2)$

$\frac{0}{2} = x^2+y^2$

$0 = x^2+y^2$



(24) $f(x,y) = 4\sqrt{9-x^2-y^2}$

$f(x,y) = k$

$k = 4\sqrt{9-x^2-y^2}$

$16 = 4\sqrt{9-x^2-y^2}$

$\frac{16}{4} = \sqrt{9-x^2-y^2}$

$4 = \sqrt{9-x^2-y^2}$

$(4)^2 = (\sqrt{9-x^2-y^2})^2$

$16 = 9-x^2-y^2$

$16-9 = -x^2-y^2$

$7 = -x^2-y^2 \; (-1)$

$-7 = x^2+y^2$

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$12 = 4\sqrt{9-x^2-y^2}$

$\frac{12}{4} = \sqrt{9-x^2-y^2}$

$3 = \sqrt{9-x^2-y^2}$

$(3)^2 = (\sqrt{9-x^2-y^2})^{\cancel{2}}$

$9 = 9-x^2-y^2$

$9-9 = -x^2-y^2$

$0 = -x^2-y^2 \quad (-1)$

$0 = x^2+y^2$

$8 = 4\sqrt{9-x^2-y^2}$

$\frac{8}{4} = \sqrt{9-x^2-y^2}$

$2 = \sqrt{9-x^2-y^2}$

$(2)^2 = (\sqrt{9-x^2-y^2})^{\cancel{2}}$

$4 = 9-x^2-y^2$

$4-9 = -x^2-y^2$

$-5 = -x^2-y^2 \quad (-1)$

$5 = x^2+y^2$

$4 = 4\sqrt{9-x^2-y^2}$

$\frac{4}{4} = \sqrt{9-x^2-y^2}$

$1 = \sqrt{9-x^2-y^2}$

$(1)^2 = (\sqrt{9-x^2-y^2})^{\cancel{2}}$

$1 = 9-x^2-y^2$

$1-9 = -x^2-y^2$

$-8 = -x^2-y^2 \quad (-1)$

$8 = x^2+y^2$

$2 = 4\sqrt{9-x^2-y^2}$

$\frac{\cancel{2}^{1}}{\cancel{4}_{2}} = \sqrt{9-x^2-y^2}$

$\frac{1}{2} = \sqrt{9-x^2-y^2}$

$\left(\frac{1}{2}\right)^2 = (\sqrt{9-x^2-y^2})^{\cancel{2}}$

$\frac{1}{4} = 9-x^2-y^2$

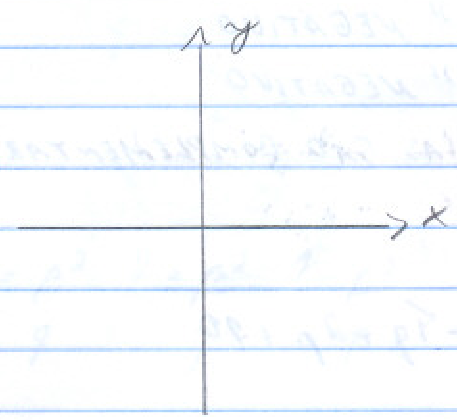
$\frac{1}{4} - 9 = -x^2-y^2$

$\frac{1-36}{4} = -x^2-y^2$

$\frac{-35}{4} = -x^2-y^2$

$-8,75 = -x^2-y^2 \quad (-1)$

$8,75 = x^2+y^2$



COMO FAZ O GRÁFICO

1774

25 $x = -p - 3q + 6$

$y = -2q - p + 8$

COEFICIENTE DE "q" NEGATIVO

COEFICIENTE DE "p" NEGATIVO

ENTÃO AS MERCADORIAS SÃO COMPLEMENTARES

26 $x = -4p + 2q + 6$

$y = 3p - q + 10 \Rightarrow y = -q + 3p + 10$

COEFICIENTE DE "q" POSITIVO

COEFICIENTE DE "p" POSITIVO

ENTÃO AS MERCADORIAS SÃO CONCORRENTES

27 $x = 6 - 3p - 2q \Rightarrow x = -3p - 2q + 6$

$y = 4 + 2p - q \Rightarrow y = -q + 2p + 4$

COEFICIENTE DE "q" NEGATIVO

COEFICIENTE DE "p" POSITIVO

AS MERCADORIAS NÃO SÃO CONCORRENTES NEM COMPLEMENTARES

28 $x = -7q - p + 7 \Rightarrow x = -p - 7q + 7$

$y = 18 - 3q - 9p \Rightarrow y = -3q - 9p + 18$

COEFICIENTE DE "q" NEGATIVO

COEFICIENTE DE "p" NEGATIVO

ENTÃO AS MERCADORIAS SÃO COMPLEMENTARES

29 $x = -3p + 3q + 13$

$y = 2p - 4q + 10 \Rightarrow y = -4q + 2p + 10$

COEFICIENTE DE "q" POSITIVO

COEFICIENTE DE "p" POSITIVO

ENTÃO AS MERCADORIAS SÃO CONCORRENTES

*

1751

30) $x = 9 - 3p + q \Rightarrow x = -3p + q + 9$

$y = 10 - 2p - 5q \Rightarrow y = -5q - 2p + 10$

COEFICIENTE DE "q" POSITIVO

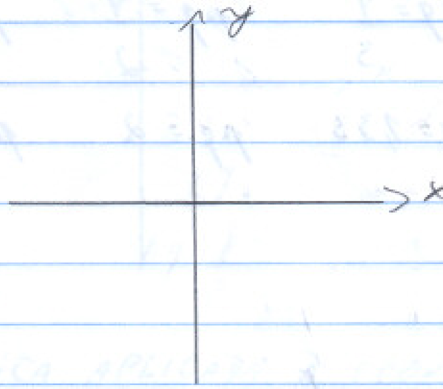
COEFICIENTE DE "p" NEGATIVO

AS MERCADORIAS NÃO SÃO CONCORRENTES NEM COMPLEMENTARES

31) $px = q$

$x = \dfrac{q}{p}$

$5 = \dfrac{q}{p}$ $\quad 4 = \dfrac{q}{p}$ $\quad 3 = \dfrac{q}{p}$ $\quad 2 = \dfrac{q}{p}$ $\quad 1 = \dfrac{q}{p}$ $\quad \dfrac{1}{2} = \dfrac{q}{p}$ $\quad \dfrac{1}{4} = \dfrac{q}{p}$



$qy = p^2$

$y = \dfrac{p^2}{q}$

$5 = \dfrac{p^2}{q}$ $\quad 4 = \dfrac{p^2}{q}$ $\quad 3 = \dfrac{p^2}{q}$ $\quad 2 = \dfrac{p^2}{q}$ $\quad 1 = \dfrac{p^2}{q}$ $\quad \dfrac{1}{2} = \dfrac{p^2}{q}$ $\quad \dfrac{1}{4} = \dfrac{p^2}{q}$

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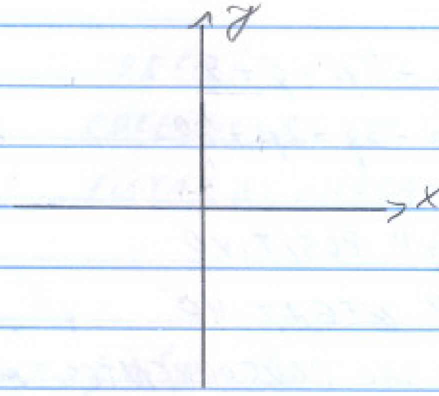


(32) $pqx = 4$

$x = \dfrac{4}{pq}$

$5 = \dfrac{4}{pq}$ $\quad 4 = \dfrac{4}{pq}$ $\quad 3 = \dfrac{4}{pq}$ $\quad 2 = \dfrac{4}{pq}$ $\quad 1 = \dfrac{4}{pq}$ $\quad \dfrac{1}{2} = \dfrac{4}{pq}$

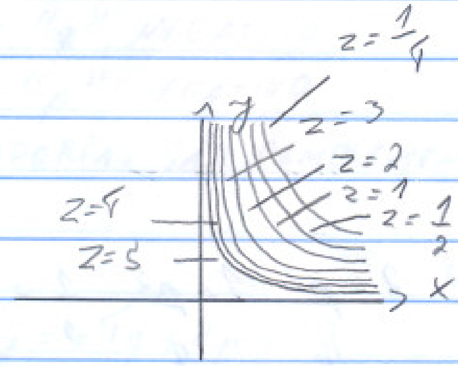
$pq = \dfrac{4}{5}$ $\quad pq = \dfrac{4}{4}$ $\quad pq = \dfrac{4}{3}$ $\quad pq = \dfrac{4}{2}$ $\quad pq = \dfrac{4}{1}$ $\quad pq = \dfrac{8}{1}$

$pq = 0{,}8$ $\quad pq = 1$ $\quad pq = 1{,}33$ $\quad pq = 2$ $\quad pq = 4$ $\quad pq = 8$

$\dfrac{1}{4} = \dfrac{4}{pq}$

$pq = \dfrac{16}{1}$

$pq = 16$



$p^2qy = 16$

$y = \dfrac{16}{p^2q}$

$5 = \dfrac{16}{p^2q}$ $\quad p^2q = \dfrac{16}{5}$ $\quad p^2q = 3{,}20$

$4 = \dfrac{16}{p^2q}$ $\quad p^2q = \dfrac{16}{4}$ $\quad p^2q = 4$

$3 = \dfrac{16}{p^2q}$ $\quad p^2q = \dfrac{16}{3}$ $\quad p^2q = 5{,}33$

$2 = \dfrac{16}{p^2q}$ $\quad p^2q = \dfrac{16}{2}$ $\quad p^2q = 8$

$1 = \dfrac{16}{p^2q}$ $\quad p^2q = \dfrac{16}{1}$ $\quad p^2q = 16$

$\dfrac{1}{2} = \dfrac{16}{p^2q}$ $\quad p^2q = \dfrac{32}{1}$ $\quad p^2q = 32$

$\dfrac{1}{4} = \dfrac{16}{p^2q}$ $\quad p^2q = \dfrac{64}{1}$ $\quad p^2q = 64$

COMO FAZ O GRÁFICO?

p^2