

## RELATÓRIO DE RESOLUÇÕES

O código de cada membro pode ser consultado a seguir:

$x_{05}$ : José Soares Jr.	$x_{11}$ : Luca Monaco
$x_{06}$ : Maurício Damiano	$x_{15}$ : Rodrigo Melendez
$x_{08}$ : Pedro Lopes Silva	$x_{18}$ : Matheus Cardoso
$x_{09}$ : Rafael Maddalena	$x_{20}$ : Gustavo Zequini

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**Resolução ( || Questão: 5.4.1 || Relator:  $x_{18}$  || Revisor:  $x_{20}$  || )** Find some particular solutions of the following two equations, then sketch their graphs:

a)  $x^2 + 2y^2 = 6$

Fazendo  $x^2 + y^2 = 6 \iff x = \pm\sqrt{6 - 2y^2}; 6 - 2y^2 \geq 0 \iff |y| \leq \sqrt{3}$

Então tem-se:

$x$	$\pm 2$	$\pm\sqrt{6}$	$\pm 2$	$\pm\sqrt{\frac{3}{2}}$	$\pm\sqrt{\frac{3}{2}}$
$y$	1	0	-1	$\frac{3}{2}$	$-\frac{3}{2}$

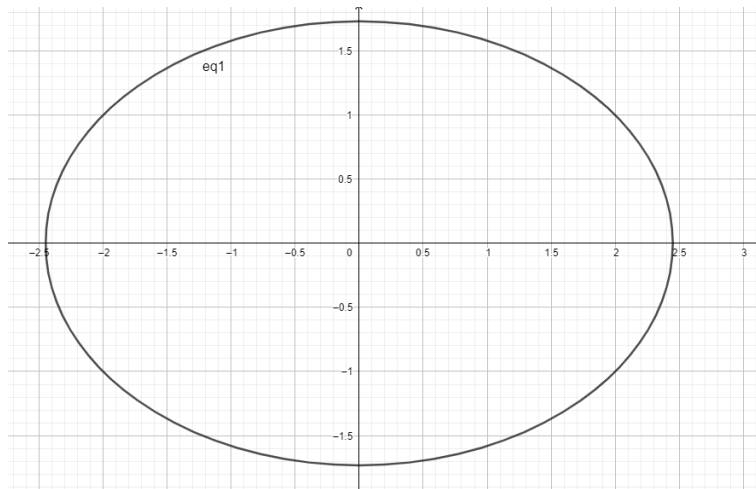


Figure 1: Gráfico de  $x^2 + 2y^2 = 6$

b)  $y^2 - x^2 = 1$

$y^2 - x^2 = 1 \iff \pm\sqrt{1 + x^2}$

Tem-se então:

$x$	-3	-2	-1	0	1	2	3
$y$	$\pm\sqrt{10}$	$\pm\sqrt{5}$	$\pm\sqrt{2}$	$\pm 1$	$\pm\sqrt{2}$	$\pm\sqrt{5}$	$\pm\sqrt{10}$

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**Resolução ( || Questão: 5.4.2 || Relator:  $x_{20}$  || Revisor:  $x_{05}$  || )** Try to sketch the graph of  $\sqrt{x} + \sqrt{y} = 5$  by finding some particular solutions.

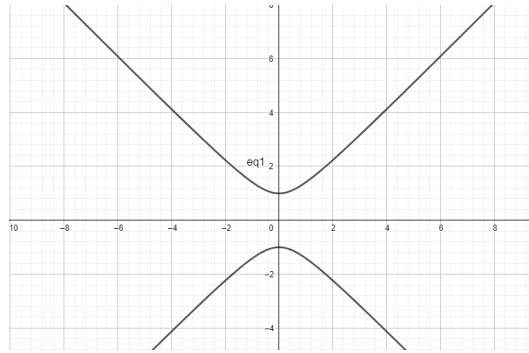


Figure 2: Gráfico da Função  $y^2 - x^2 = 1$

Rearranjando a equação:

$$\sqrt{x} + \sqrt{y} = 5 \quad (1)$$

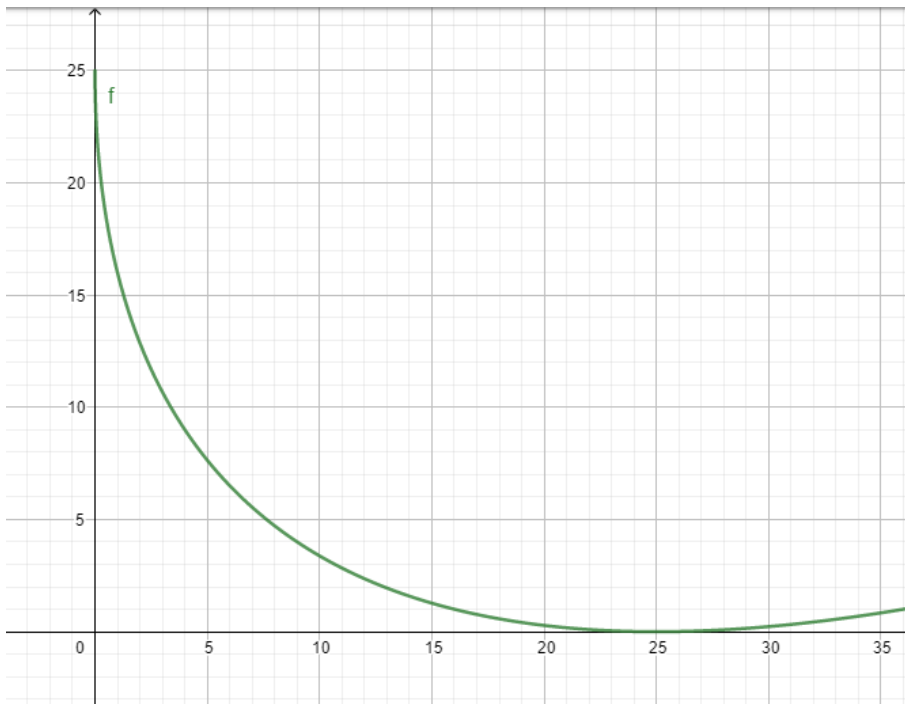
$$\sqrt{y} = 5 - \sqrt{x} \quad (2)$$

$$(\sqrt{y})^2 = (5 - \sqrt{x})^2 \quad (3)$$

$$y = 25 - 10\sqrt{x} + x \quad (4)$$

Testando valores para  $x$ :

$x$	$y$
0	25
1	16
4	9
9	4



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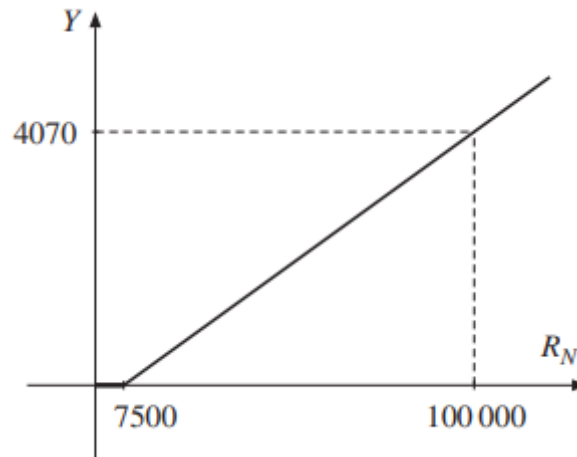
Resolução ( || Questão: 5.4.3 || Relator: x<sub>05</sub> || Revisor: x<sub>08</sub> || )

The function  $F$  is defined for all  $r \geq 0$  by the following formulas:

$$F(r) = \begin{cases} 0 & \text{for } r \leq 7500 \\ 0.044(r - 7500) & \text{for } r > 7500 \end{cases}$$

Compute  $F(100000)$ , and sketch the graph of  $F$ .

$$f(100000) = 0.044(100000 - 7500) = 0.044 \cdot 92500 = 4070$$



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