Atividade A12 – 1º Bimestre – Versão 5

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■ Diurno □ Noturno 2.4	Tronco: **Elétrica**	Data: **13/04/2020**	Nota:

Obtenha a derivada $\frac{\partial z}{\partial x}$ e $\frac{\partial z}{\partial y}$ para a função: $x^2 + xz^2 + zx^2 + yz + yz^2 = 3$.

$$f(x, y, z) = x^2 + xz^2 + zx^2 + yz + yz^2 - 3$$

$$F_x = \frac{\partial F}{\partial x} = 2x + z^2 + 2xz$$

$$F_y = \frac{\partial F}{\partial y} = z + z^2$$

$$F_z = \frac{\partial F}{\partial z} = 2zx + x^2 + y + 2yz$$

$$\frac{\partial z}{\partial x} = \frac{-F_x}{F_z} = -\left(\frac{2x + z^2 + 2xz}{2zx + x^2 + y + 2yz}\right)$$

$$\boxed{\frac{\partial z}{\partial x} = -\frac{z^2 + 2x + 2xz}{x^2 + y + 2xz + 2yz}}$$

$$\frac{\partial z}{\partial y} = -\frac{F_y}{F_z}$$

$$\boxed{\frac{\partial z}{\partial y} = -\frac{z^2 + z}{x^2 + y + 2xz + 2yz}}$$

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