

## Cálculo Diferencial e Integral 2 Respostas à Ficha de Trabalho 4

1.  $\begin{bmatrix} 2 & -2 \\ 3 & -3 \\ 3 & -3 \end{bmatrix}$

2.  $4t^3$ .

3. 18

4.  $\begin{bmatrix} 1 \\ 4 \\ 7 \end{bmatrix}$

5.  $\nabla g(x, y) = \left( -\frac{\partial F}{\partial x}(x, y, g(x, y)), -\frac{\partial F}{\partial y}(x, y, g(x, y)), -\frac{\partial F}{\partial z}(x, y, g(x, y)) \right)$

6. Recta tangente:  $\{(1, 1, 0) + t(1, 0, 1) : t \in \mathbb{R}\}$ ; Plano normal:  $x + z = 1$ .

7. Recta normal:  $\{(0, 1, 0) + t(0, 2, 1) : t \in \mathbb{R}\}$ ; Plano tangente:  $2y + z = 2$ .