

# Aprendizagem

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## Homework 2 - Report

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### Pen and Paper

1.  $y_1, y_2, y_3, y_4$  and  $y_5$  independent  $\implies p(y_1, y_2, y_3, y_4, y_5) = p(y_1, y_2) \times p(y_3, y_4) \times p(y_5)$

Fórmulas utilizadas:

$$\vec{y} = \begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ y_4 \\ y_5 \end{bmatrix} \quad (1)$$

$$P(y_6 = H | y_1, y_2, y_3, y_4, y_5) = \frac{P(y_1, y_2, y_3, y_4, y_5 | y_6 = H)}{P(y_1, y_2, y_3, y_4, y_5)} \quad (2)$$

$$P(\vec{y} | \mu, \sigma^2) = \frac{1}{(2\pi)^{m/2} \sqrt{|\Sigma|}} e^{-\frac{1}{2}(\vec{y} - \vec{\mu})^T \cdot \Sigma^{-1} \cdot (\vec{y} - \vec{\mu})} \quad (3)$$

# Programming - Código Python e Resultados Obtidos

1.