1. [4 marks] TRUE/FALSE: Justify your answer by mathematical computations, a picture or an explanation.

(a) If we compute the Right Riemann sum on an interval \([a, b]\) for the function \(y = e^x\), it is always an underestimate.

(b) \(\int_0^\pi (\cos x + 2)dx = 2\pi\)
2. (a) [5 marks] Find the most general anti-derivative of \( f(x) = \frac{3}{\sqrt{x}} - 4e^x + 5x^2 - 1 \).

(b) [3 marks] Find one particular anti-derivative \( F(x) \) for the function \( f(x) \) in part (a) such that \( F(0) = 1 \).