1. (4 points) (no calculator) Find the solution of the differential equation \( y' = 3 \sin x - 4 \cos x \) that satisfies \( y(\pi) = 5 \).

2. (5 points) (no calculator) Find all antiderivatives of \( f(x) = 2e^x + 7x \).

3. (6 points) (no calculator) Evaluate the following:
   (a) \( \int (x^2 + x\sqrt{x}) \, dx \)
   (b) \( \int_0^2 4^x \, dx \)

4. (5 points) (no calculator) Graph the antiderivative \( F(x) \) of \( f(x) \) such that \( F(0) = 2 \) given the graph of \( f(x) \) below.