Let \( g(x) = \int_{0}^{x} f(t) dt \), where \( f \) is the function whose graph is shown.

**Problem 1:** Evaluate the function values

\[
g(0) = g(1) = g(3) =
\]

**Problem 2:** Evaluate the function values

\[
f(0) = g'(1) = g'(2) =
\]

**Problem 3:** Where \( g(x) \) has a maximal value in the interval \([0,9]\)?
(Circle the right answer)

\[
x = 0 \quad x = 2 \quad x = 3 \quad x = 4 \quad x = 5 \quad x = 6 \quad x = 8 \quad x = 9
\]

**Problem 4:** On what interval \( g \) decreases?
Problem 5: Use Fundamental Theorem of Calculus to find the derivative of the function:
   a) \( F(x) = \int_0^x \ln(t) \, dt \)
   b) \( F(x) = \int_0^2 t^2 \, dt \)
   c) \( F(y) = \int_{\ln(e^9)}^y x^2 \sin(x) \, dx \)

Problem 6: Evaluate the integral \( \int_1^2 x^{-2} \, dx \)

Problem 7: Evaluate the integral \( \int_0^1 x^{3/7} \, dx \)

Problem 8: State the Fundamental Theorem of Calculus:

Problem 9: Compute \( y' \) if \( y = (x^2 + e^x) \ln x \).

Problem 10: Write a particular antiderivative for each of the following functions:
   a) \( y = e^x \)
   b) \( y = x^{-1} \)
   c) \( y = x^5 \)
   d) \( y = \sin(x) \)