1. Evaluate the following integrals.
   a. \( \int \sin^2(x) \cos^3(x) \, dx \)
   b. \( \int 18x^5(x^3 - 5)^4 \, dx \)
   c. \( \int_0^2 (x + 3)(x - 1)^5 \, dx \)
   d. \( \int_1^2 \frac{(3 + \ln(x))^2(2 - \ln(x))}{4x} \, dx \)

2. Find the area between the following curves
   a. \( f(x) = x - 2 \) and \( g(x) = x^2 \)
   b. \( f(x) = \frac{2}{1 + x^2} \) and \( g(x) = 1 \)
   c. \( f(x) = e^x \) and \( g(x) = e^{-2x} \) and \( x = \ln(4) \)
   d. \( f(x) = x^3 \) and \( g(x) = x + 6 \) and the x-axis
   e. \( f(x) = 8 - 2x \) and \( g(x) = x + 8 \) and \( y = 0 \)
   f. \( f(x) = \ln(x) \) and \( y = 2 \) and \( y = 0 \) and \( x = 0 \)