Submit your solutions to the following problems in lecture on the due date above. Present your work in a clean and organized fashion, either on a printed copy of this document (preferred) or a separate sheet of paper. As stated in the syllabus, late submissions will not be accepted.

1. Evaluate the following integrals.

   (a) \[ \int x^2 e^{5x} \, dx \]

   (b) \[ \int x^3 \cos(x) \, dx \]

   (c) \[ \int x^2 \ln(x^3) \, dx \]

   (d) \[ \int \frac{x^2 - 3}{(x^2 - 1)(x + 1)} \, dx \]