An Introduction to Mathematics For Political Science

Problem Set 3

You are encouraged to work in groups and actively participate on the Piazza page. Submitted solutions must be your individual work. Do not use a calculator or search for solutions. Show all of your work. Starting this week all solutions must be written in LaTeX.

Integration

1. Evaluate the following:

   a) $\int x^2 + 2x + 2 \, dx$

   b) $\int x^7 + x^{-3} - \frac{1}{x} \, dx$

   c) $\int_4^9 \frac{1}{x\sqrt{x}} \, dx$

   d) $\int e^{-x/3} \, dx$

   e) $\int e^{2x} - 2e^x - 2ex^2 \, dx$

   f) $\int_{-e^2}^{-1} \frac{4}{x} \, dx$

   g) $\int_0^2 2x^2 + 3x + 1 \, dx$

   h) $\int_{-a}^{a} x^5 \, dx$

   i) $\int e^{\sqrt{x}} \, dx$

   j) $\int \frac{e^{2x}}{2} dx$

   k) $6 \int x e^{2x} dx$

l) $\int \frac{(6x^2+5)e^{2x}}{2}dx$

m) $\int(2x^3 + 5x + 1)e^{2x}\, dx$