College of the Holy Cross, Spring Semester, 2019
Math 134 Worksheet 5
Due Tuesday, February 12

1. Use the method of substitution to evaluate each of the following indefinite integrals.

   (a) $\displaystyle\int \frac{x^2}{(x^3+3)^5}\,dx$

   (b) $\displaystyle\int \frac{x^2}{(x+3)^5}\,dx$

   (c) $\displaystyle\int \frac{x+1}{\sqrt{x^2+2x+1}}\,dx$

   (d) $\displaystyle\int \frac{e^{7x}}{e^{7x}+9}\,dx$

   (e) $\displaystyle\int (2x-3)\sqrt{3+5x}\,dx$

   (f) $\displaystyle\int e^{3x}\sec^2(e^{3x})\,dx$

   (g) $\displaystyle\int \frac{e^{\sqrt{x}}}{\sqrt{x}}\,dx$

   (h) $\displaystyle\int \cos^3(2x)\sin(2x)\,dx$

   (i) $\displaystyle\int \frac{3}{9x^2+25}\,dx$

   (j) $\displaystyle\int \frac{3}{x^2-4x+20}\,dx$

2. Evaluate each of the following definite integrals.

   (a) $\displaystyle\int_0^1 (x^2+3x+4)^3(2x+3)\,dx$

   (b) $\displaystyle\int_0^{\pi/6} \sin^2(x)\cos(x)\,dx$