MA1125 – Calculus
Homework #8
due Thursday, Nov. 15

1. Compute each of the following indefinite integrals.

$$\int \frac{\sin\sqrt{x}}{\sqrt{x}}\,dx, \qquad \int x\sqrt{1-x}\,dx.$$

2. Compute each of the following indefinite integrals.

$$\int \sin^3 x \cdot \cos^4 x\,dx, \qquad \int \tan^2 x \cdot \sec^6 x\,dx.$$

3. Compute each of the following indefinite integrals.

$$\int x^3(\ln x)^2\,dx, \qquad \int x^3\sqrt{4-x^2}\,dx.$$

4. Find the area of the region enclosed by the graphs of $f(x) = e^{2x}$ and $g(x) = 3e^x - 2$.

5. Find the volume of the solid that is obtained by rotating the graph of $f(x) = xe^x$ around the x-axis over the interval $[0, 1]$.

- This assignment is due by Thursday noon, either in class or else in my office.
- Write your name and course (Maths, TP, TSM) on the first page of your homework.
- NO LATE HOMEWORK WILL BE ACCEPTED.