

**Homework problems for sections 8.2***Math 104, Spring 2007*Credit is given only if you choose the correct answer *and* show supporting work.

1. Integrate

$$\int_0^{\pi/4} \frac{\sec x \tan x}{1 + \sec^2 x} dx.$$

- A.) 0    B.)
- $\frac{1}{4}\pi$
- C.)
- $\sqrt{1 - \frac{1}{16}\pi^2} - 1$
- D.)
- $\frac{1}{12}\pi$
- E.)
- $\tan^{-1} \sqrt{2} - \frac{1}{4}\pi$
- F.)
- $\tan^{-1} (\frac{1}{2}\sqrt{2})$

2. Integrate

$$\int_0^{\pi/6} \frac{\tan^2(2x)}{\cos^2(2x)} dx.$$

- A.)  $\frac{1}{6}\pi$    B.)  $\pi$    C.)  $6\pi$    D.)  $\frac{1}{2}\sqrt{2}$    E.)  $\frac{1}{2}\sqrt{3}$    F.) 1

3. Integrate,

$$\int_0^{\sqrt[3]{\pi}} x^2 \sin^2(x^3) dx.$$

- A.)  $\frac{1}{6}\pi$    B.)  $\pi$    C.)  $6\pi$    D.)  $\frac{1}{2}\sqrt{2}$    E.)  $\frac{1}{2}\sqrt{3}$    F.) 1