Math 16B
Kouba
Handout 11

1.) Find the following indefinite integrals.

a.) $\int 3 \tan 7x \, dx$

b.) $\int \tan^2 x \, dx$

c.) $\int (1 + \sec 5x)^2 \, dx$

d.) $\int (\tan x + \sec x)^2 \, dx$

e.) $\int (\cot x + \cot^2 x) \, dx$

f.) $\int \csc 3x \cot 3x \, dx$

g.) $\int \csc 2x \, dx$

h.) $\int \sec^2 x \, (\tan^2 x - 1)^{-1} \, dx$

2.) Compute the average value of $f(x) = \tan(x/2)$ on the interval $[0, 2\pi/3]$.

3.) Consider the region bounded by the graphs of $y = \sec x$, $y = 0$, $x = -\pi/4$, and $x = \pi/4$. Determine the volume of the solid formed by revolving this region about the x-axis.