Name: SOLUTIONS

Quiz #6 - February 16, 2007

1. $\int \cos^5 x \sin x dx$.

$u = \cos x$

$du = -\sin x dx$

$= \boxed{-\frac{1}{6}\cos^6 x + C}$

2. $\int \sin^2(x) dx$

$= \int \frac{1}{2} - \frac{1}{2}\cos 2x \, dx$

$= \boxed{\frac{1}{2}x - \frac{1}{4}\sin 2x + C}$

3. $\int \sec^3(x)\tan^3(x) dx$

$= \int \sec^2 x \tan^2 x \cdot \sec x \tan x \, dx$

$= \int (\sec^2 x - 1)\tan^2 x \sec x \tan x \, dx$

$u = \sec x \quad du = \sec x \tan x \, dx$

$= \int u^2 - 1 \, du$

$= \int u^4 - u^2 \, du = \frac{1}{5}u^5 - \frac{1}{3}u^3 + C$

$= \boxed{\frac{1}{5}\sec^5 x - \frac{1}{3}\sec^3 x + C}$