

Quiz 1

Math 1572H, 26 January 2006

1. [4 points, 1 per part] For parts (a) through (d), write down what you feel is the most logical substitution to use in order to do the integral. For example, your answer may be $u = 16x^2$. You are *not* expected to do the integration.

(a) $\int x\sqrt{x^2+1} dx$ (b) $\int \tan^2 x \cos x dx$ (c) $\int \frac{x^3}{\sqrt{9-x^2}} dx$ (d) $\int \frac{x^3}{\sqrt{9+x^2}} dx$

2. [2 points] Evaluate the integral

$$\int \sin^2 x \cos^3 x dx.$$

3. [4 points] Evaluate the integral

$$\int \frac{(x+3) dx}{\sqrt{-x^2+4x+5}}.$$