Name: _____ Class: _____ Date: _____ ID: A

Midterm 2, Phys 30, March 21, 2008

Free Response
Each problem is worth 10 pts
Useful identities:

$\sin^2(x) + \cos^2(x) = 1$

$\sec^2(x) = \tan^2(x) + 1$

1. Evaluate the integral.

$$\int_0^{p/2} \sin^3 \cos^2 d$$

2. Evaluate the integral.

$$\int \frac{x - 1}{x^2 + 2x}\,dx$$

3. Evaluate the integral.

$$\int_0^{100} t \ln t\,dt$$

4. Evaluate the integral using the given substituion. Answer must be in terms of x.

$$\int \frac{x^3}{x^2 + 25}\,dx \;; x = 5\tan$$

5. Find the length of arc of the curve x = 0 to x = 8/9

$$y = 2x^{3/2} - 1$$