

# Math 222 Quiz 1

Jan 26, 2011

Your Name:

Your Section:

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*Instructions: You have 15 minutes to solve the following problems and the total score is 10 points. There are bonus problems on the back.*

1. Use integral by parts to evaluate  $\int x^2 e^{-x} dx$  (5 pts)
2.  $\int_0^1 \sqrt{1-z^2} dz$  (3 pts)  
Hint: substitution  $z = \sin \theta$
3.  $\int \frac{\sin 2x}{1+\sin x} dx$  (2 pts)

Bonus 1: Prove  $\int \tan^n x dx = \frac{1}{n-1} \tan^{n-1} x - \int \tan^{n-2} x dx$  (1pt) and use it to calculate  $\int \tan^3 x dx$  (2 pts)

Bonus 2:  $\int e^{\sin^2 x} \sin(2x) dx$  (2 pts)