

MATH 1700 D01 Fall 2012 Assignment 3

SHOW ALL WORK to get full marks. Leave answers as exact answers. For example, leave it as e^2 as opposed to a decimal approximation.

Find the following definite or indefinite integrals

1. $\int_0^{\pi/2} \sin^3 \theta \cos^2 \theta d\theta$

2. $\int_1^4 x^{5/2} \ln x dx$

3. $\int x \sin \sqrt{x} dx$

4. $\int \frac{(3t-15)dt}{t^2-3t}$

5. $\int e^{2x} \sin 3x dx$

6. $\int \frac{y^2 dy}{(4+y^2)^{3/2}}$

7. $\int t(1 - 2 \sin^2 t) dt$

8. $\int_{-1}^1 \frac{3x^3 - 8x^2 - 15x - 2}{x-4} dx$

9. Find the area of the region bounded by the hyperbola $y^2 - x^2 = 9$ and the line $y = 5$.