

NAME: _____

Math 181 Hour Exam One

1. Evaluate the integral $\int \cos^3 x \, dx$. [16 pts]
2. Evaluate the integral $\int x e^{3x} \, dx$. [16 pts]
3. Evaluate the definite integral $\int_0^2 \frac{x^2}{\sqrt{1+x^3}} \, dx$. [17 pts]
4. The region R is bounded above by the parabola $y = 4 - x^2$ and bounded below by the line $y = 2 - x$.
 - (a) Set up a definite integral giving the area of the region R . [8 pts]
 - (b) Evaluate your integral to find this area. [9 pts]
5. Find the volume of the solid that is obtained by rotating about the x -axis the region enclosed by the graphs of the functions [17 pts]
 $y = 0$, $y = x^2$, and $y = 3 - 2x$.
6. Compute the average value of the function $f(x) = \sin(\pi x)$ over the interval $[0, 1/2]$. [17 pts]