PRACTICE EXAM 4 - MATH 112

DATE: Tuesday, November 22
INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each question is worth 3 points. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Compute the indefinite integrals:
   (a) $\int \frac{x^2-1}{x^{3/2}}dx$
   (b) $\int x(1-2x^2)^3dx$
2. Compute the integrals:
   (a) $\int 3(x-4)e^{x^2-8x}dx$
   (b) $\int \frac{5x+15}{x^2+6x+11}dx$
   (c) $\int \frac{2}{1+e^{-x}}dx$
3. The graph of the function $f(x)=\frac{x^2+2x+5}{x-1}$ lies above the x-axis in the interval $[2,5]$. Find the area of the region of the plane that lies between the graph of f and the x-axis and the lines $x=2$ and $x=5$.
4. Find the area of the region bounded by the graphs of $f(x)=x+1$, $g(x)=-\frac{1}{2}x+7$ and $x=0$.
5. Find the volume of the solid of revolution formed by revolving the graph of $y=-x^2+2x$, $0\leq x\leq 2$, around the x-axis.
6. Compute the definite integral $\int_0^5 \frac{x}{(x+5)^2}dx$.