QUIZ 10 - MATH 112 Friday, April 7

YOUR NAME:_____ George Voutsadakis

Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. (a) Compute the indefinite integral $\int \frac{(t^2-3)(t+5)}{t^2} dt$.

(b) A medication is absorbed into the bloodstream at the rate of $5e^{-0.04t}$ mg/min, where t is the number of minutes since the medication was taken. Find the total amount of the medication absorbed within the first t minutes.

2. Consider the piece-wise defined function

$$f(x) = \begin{cases} x^2, & \text{if } 0 \leq x \leq 2 \\ -x + 6, & \text{if } 2 < x \leq 6 \end{cases}$$

(a) Sketch the graph of $y = f(x)$. (Label clearly all your points.)

(b) Find the area of the region under the graph of $y = f(x)$ over the interval $[0, 6]$.