MATH 142 QUIZ 2

Name:

You may use a calculator, your notebook, and your textbook on this quiz. You may not use a cell phone or computer. Please show your work and give justifications for your answers. If you find that you are spending a lot of time on one problem, leave it blank and move on to the next. **There are quiz questions on both sides of this paper.**

(1) (10 pts) Which of the graphs above shows the Lorentz curve for a country in which all people receive an equal salary?

(2) (10 pts) Which of the graphs above shows the Lorentz curve for a country in which only the wealthiest person in the country receives a salary?

(3) (10 pts) Write down an equation for the present value of a revenue stream of \$5,000 per year, assuming you invest the income at a rate of 5% compounded continuously for a term of T years. (You need not evaluate the integral.)

(4) (25 pts) Calculate $\displaystyle\int \frac{dx}{x^2\sqrt{x^2-9}}$.

(5) (25 pts) Is the integral $\displaystyle\int_0^\infty \frac{1}{x+1}dx$ finite? If so, what is its value?

(6) (20 pts) Find the area (if it is finite) of the region below the graph of $f(x) = \dfrac{1}{x^5}$, to the right of the line $x = 1$ and above the positive x-axis; i.e. on $[1, \infty)$.