Math 211 – Exam I – 50 minutes – Friday Sep 19, 2003

I. (30 points.) Let \( f(x) = x^2 + 2x - 1 \), Find the following and simplify them as much as possible.
(a) \( f(-2) \).
(b) \( f(1-t) \).
(c) \( \frac{f(1+h)-f(1)}{h} \).

II. (30 points.) Suppose that you put \$5,000 in an account paying 4% annual interest, and you leave it there without adding or withdrawing anything. How much money will you have at the end of 3 years if the interest is compounded
(i) 6 times a year.
(ii) 24 times a year.
(iii) continuously.

III. (30 points.) Solve the equation \( \ln(x) + \ln(x+2) = 0 \).

IV. (30 points.) Suppose you deposit \$1,000 in an account paying an annual interest rate of 6% compounded continuously. How long will it take for the account to reach \$2,000?

V. (30 points.) For the function \( f(x) = \frac{x^2}{(x-1)(x-2)} \) find the indicated limits and sketch the graph.

\[
\lim_{x \to \infty} f(x) = \quad \lim_{x \to -\infty} f(x) = \quad \lim_{x \to 1} f(x) = \\
\lim_{x \to 0} f(x) = \quad \lim_{x \to 1^+} f(x) = \quad \lim_{x \to 1^-} f(x) = \\
\lim_{x \to 2^-} f(x) = \quad \lim_{x \to 2^+} f(x) = \quad \lim_{x \to -2} f(x) =
\]

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Mon Sep 22 15:41:34 2003

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