

Math 1241 - Spring 2008

First Practice Midterm, Feb 2008

Instructor: Catalin Turc

You must show **all** your work to receive credit.

Important: No books, graphing calculators, or notes are allowed.

Cheating may result in failure of course (don't even think about it). Please read each question carefully, show all your work, and check afterwards that you have answered all questions correctly. Any crossed work will be disregarded (even if correct). Write **one** clear answer with a coherent derivation. Good luck!

[1] Find the formula for the inverse of the function:

$$a) f(x) = \sqrt{10 - 3x}$$

$$b) f(x) = e^{x^3}.$$

[2] Find the exact value of each expression:

$$a) \ln e^{\sqrt{2}}$$

$$b) \log_{10} 1.25 + \log_{10} 80.$$

[3] Compute the following limits:

$$a) \lim_{x \rightarrow 4} \sqrt{x^2 - 7}$$

$$b) \lim_{x \rightarrow 3} \frac{x^2 - 2x - 3}{3 - x}$$

$$c) \lim_{x \rightarrow 0} \frac{\sqrt{3+x} - \sqrt{3}}{x}.$$

For the last problem you'll need concepts that will be covered on MON

[4] Compute the following limit at infinity:

$$a) \lim_{x \rightarrow \infty} \frac{3x^2 + 5}{x^2 - 2}.$$

$$b) \lim_{x \rightarrow \infty} (\sqrt{9x^2 + x} - 3x).$$