MATH 170 – Sections 003 and 004 – Quiz 8

You may work with other class members on this quiz, but you may not receive assistance from people not in your MATH 170 section. You must show all of your work to receive full credit. Do all your work on other sheets of paper and be sure to staple all the pieces of paper together or YOU WILL GET A ‘ZERO’ ON THE QUIZ. Do not use decimal approximations unless asked to do so. Your work on this quiz must be handed in by the beginning of class on Friday, 7 April 2006. GOOD LUCK!

1) Let

\[ f(x) = \frac{1}{2}x + \sin x. \]

a) Find all critical points of \( f \).

b) For what values of \( x \) is \( f \) increasing? decreasing?

c) For what values of \( x \) does \( f \) have a local minimum? local maximum?

d) For what values of \( x \) is \( f \) concave up? concave down?

e) Find all inflection points of \( f \).

2) Repeat exercise 1) for the function

\[ f(x) = x^{2/3} (x^2 - 1). \]