

MATH 170 – Section 008 – Quiz 9

You may work with other class members on this quiz, but you may *not* receive assistance from people not in MATH 170 (Section 008). 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 Monday, 11 April 2005 at 1540. **GOOD LUCK!**

1) Evaluate the following limits:

a) $\lim_{x \rightarrow 0} \frac{\sin x - x}{x^3}$

b) a) $\lim_{x \rightarrow \pi} (\sin x)^{\sin x}$

2) Without using technology, sketch the graph of

$$f(x) = x + \sin x.$$

Follow all the steps given either in class or in the text on pages 317-318. Tell on which intervals f is increasing, decreasing, concave up, and concave down. Determine all critical points and classify each as a local maximum, local minimum, or neither. Determine all inflection points. (Extra credit problem: prove that this function has exactly one x -intercept).

3) Use Newton's method to approximate all solutions of the equation

$$2x - 3 = \ln x.$$

Your answers should be correct to six places to the right of the decimal point.