

MATH 170 – Sections 003 and 004 – Quiz 9

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, 14 April 2006. GOOD LUCK!

1) Evaluate the following limits:

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

b) $\lim_{x \rightarrow 0^+} x^{\sin x}$

2) Sketch the graph of

$$y = f(x) = \frac{\ln x}{x}.$$

Discuss the domain of f , all x - and y - intercepts, and any asymptotes. Find all critical points of f and classify each as a local maximum, local minimum, or neither. Determine for which values of x that f is increasing and for which values of x that f is decreasing. Determine for which values of x that f is concave up and for which values of x that f is concave down. Find all inflection points of f .