

## HW # 1 Due date: February 6, 2008

1. Write a program based on binary search to find the integer part of the square root of a 64-bit integer. (Thus, the square root of 39 is 6.) Submit your code with the output for the inputs 87483743339 and 6737638921.

(Hint: reduce the size of the interval containing the square root by two in each iteration.)

2. Problem 3.3 (a) for the following functions:

$$\begin{aligned} & (\sqrt{2})^{\lg n} \\ & (\lg n) \\ & n^{\lg \lg n} \\ & \frac{4^{\lg n}}{2^{\sqrt{2} \lg n}} \\ & n^2 \\ & n \lg n \end{aligned}$$