

Name:

PID:

Discussion Section - No:

Time:

TA's name:

Quiz 1, Math 10C - Lecture A (Winter 2007)

Duration: 20 minutes

Please close your books, turn your calculators off and put them away. You can use one page of notes. To get full credit you should support your answers.

1. Consider the functions.

$$f(x) = \begin{cases} e^{-2x} & x \geq 0 \\ 0 & x < 0 \end{cases}, \quad g(x) = \begin{cases} 1 - e^{-2x} & x \geq 0 \\ 0 & x < 0 \end{cases}, \quad \text{and} \quad h(x) = \begin{cases} 1 + e^{-2x} & x \geq 0 \\ 0 & x < 0 \end{cases}.$$

a) (2 points) Only one of the functions above is a cumulative distribution function. Determine which one of $f(x)$, $g(x)$ and $h(x)$ is a cumulative distribution function. Justify your answer.

b) (3 points) Find the density function representing the same distribution as the cumulative distribution function that you identified in part **a)**.

c) (1 point) What is the probability that the variable x takes a value on the interval $[-2, 2]$ if its cumulative and density distributions are given by the functions you determined in part **a)** and **b)**, respectively?

d) (2 points) Find the median of the distribution from part **a)** and **b)**.