name : _____

section : 109

GSI : Charles Wang

(2 pts) Circle True or False. (+1 for correct, 0 for blank, -1 for incorrect)

1. (True False) Every nonnegative function $f(x)$ can be scaled by some constant c so that $cf(x)$ is a pdf.

2. (True False) A discontinuous function can never be a pdf.

(10 pts) For the following, you must **justify** your answer to receive credit. (Showing your work counts as justification.)

3. (a) Let $f(x) = \begin{cases} 0 & x \leq 1 \\ \frac{1}{x^3} & x \geq 1 \end{cases}$. Find the constant c which makes $cf(x)$ a pdf.

(b) Find the cdf $F(x)$ for the pdf $cf(x)$, and compute the median.