

name : _____

section : 105

GSI : Charles Wang

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

1. (True False) For a symmetric pdf, the median is always equal to the mean.
2. (True False) An exponential pdf always has median less than its mean.

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

3. Let $f(x) = \frac{4}{\pi} \frac{1}{1+16x^2}$.

(a) Sketch a graph of $f(x)$. (2pts)

(b) Verify that $f(x)$ is a pdf. (3pts)

(c) Compute the median and mean of $f(x)$. *Hint:* Is $f(x)$ symmetric? (5pts)