LPS ECON-103-601, Fall 2014
Quiz 08.10.14 Name: _____

Show all work clearly and in order. Circle or box your final answer but points will be awarded based on a correct solution. A solution should always justify the steps taken and explain the assumptions needed to reach a final answer (e.g. how do you know you are not dividing by zero in the last step?).

Q1

Consider the probability density function $f(x) = \varphi \cdot e^{-x/10}$ for the non-negative random variable X.

- What is the support of X?

- Find φ. Express your answer as an integer.

- Find the CDF of X.

- Find $P(x_0 \leq X \leq x_1)$ where $x_0, x_1 \in \mathbb{R}$.

Q2

Suppose $\mathbb{E}[X] = 2$ and the function of X is

$$f(x) = \begin{cases} a + \frac{2}{x^2} & 1 \leq x \leq \pi \\ 0 & otherwise \end{cases}$$

Is there a value of a that makes f a proper density function?