

7. (14 points) Suppose the amount of time x that riders wait for the bus to arrive at a certain bus stop is given by the probability density function

$$f(x) = \frac{1}{10}e^{-\frac{1}{10}x}$$

where x is measured in minutes.

(a) What percentage of the time will a rider wait less than 5 minutes for the bus to arrive? (Show your work.)

(b) What is the mean waiting time until the next bus arrives? (Show your work.)

(c) What is the median waiting time until the next bus arrives? (Show your work)