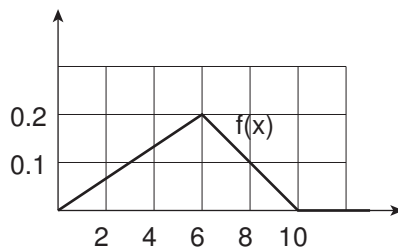


Probability Questions

Math 153H, Spring 2008

Due Wednesday, 1/30/08

1. Please refer to the graph below.



- Explain why the function $f(x)$ is a probability density function.
- Use the graph to find $P(x \leq 8)$.
- What is the average x -value \bar{x} ?

2. The manager of a fast-food restaurant determines that the probability of a customer being served during the t^{th} minute is

$$f(t) = \frac{1}{2} e^{-t/2}.$$

- What is the probability that a customer has to wait less than 5 minutes?
- The manager wants to advertise that anybody who needs to wait more than a fixed number of minutes gets a free hamburger. But she also wants to make sure that at least 98% of the customers do have to pay for their food (and don't get the freebie). What should the advertisement say?