

Additional problems for HW 4

November 1, 2011

1. Let the random variable X have pdf $f(x) = 2(1 - x), 0 \leq x \leq 1$, zero elsewhere.
 - a. Sketch the graph of this pdf.
 - b. Determine and sketch the graph of the distribution of X .
 - c. Find $\mathbb{P}(0 \leq X \leq 1/2)$, $\mathbb{P}(1/4 \leq x \leq 3/4)$, $\mathbb{P}(X = 3/4)$ and $\mathbb{P}(X \geq 3/4)$.
2. Let $f(x) = (\sin x)/2, 0 \leq x \leq \pi$, be a pdf of X . Find μ and σ^2
3. Telephone calls enter a college switchboard at a mean rate of $2/3$ call per minute according to a Poisson process. Let X denote the waiting time until the tenth call arrives.
 - a. What is the pdf of X ?
 - b. What are the moment-generating function, mean, and variance of X ?