

HW #3

Please, write clearly and justify all your steps, to get proper credit for your work.

(1)[8 Pts] Suppose that the probability density function $f(x)$ of the length X of an international phone call, rounded up to the next minute is given by:

x	1	2	3	4
$f(x)$	0.2	0.5	0.2	0.1

- (a) Calculate $P(X \leq 2)$, $P(X < 2)$, and $P(X \geq 1)$.
- (b) Plot the cumulative distribution function $F(x)$.
- (c) Calculate the mean $\mu = E(X)$.
- (d) Calculate $E(X^2)$ and use it to compute the variance σ^2 .

(2)[6 Pts] Exercise 12, in Ch.3 (p.104).

(3)[6 Pts] Exercise 14, parts (a)-(c), in Ch.3 (p.105).

(4)[5 Pts] The university football team has 11 games on its schedule. Assume that the probability of winning each game is 0.40 and that there are no ties. Assuming independence, what is the probability that this year's team will have a winning season, that is, that the team will win at least six games?