

Homework 6

Problems 1 - 3: numbers 3.18, 3.28 (c) - (e) and 3.39 from the textbook.

Problem 4: Consider a lifetime T with hazard function

$$h(t) = 1 - \frac{e^{-t}}{(1 + e^{-t})^2}, \quad t \geq 0.$$

Find the cdf $F(t)$ of T and check your answer by showing that $F(t)$ is indeed a distribution function.

Problem 5: Consider the random vector (X, Y) with distribution given by the below table.

		X		
		1	2	3
Y	1	0.1	0.2	0.0
	2	0.3	0.0	0.1
	3	0.2	0.1	

(a) Complete the table by filling in the missing value and by specifying the marginal distributions of X and Y .

(b) Show that X and Y are dependent.

(c) Determine the distribution of random variables \tilde{X} and \tilde{Y} that have the same marginal distributions as X and Y but are independent.