

Homework 5

Problem 1: Consider a r.v. X and the transformation $Y = e^X$ with $E(Y) = 1$. Can we determine the sign of $E(X)$? If no: why not? If yes: find it.

Problem 2: Suppose you toss a coin about which you know that, on average, in one third of all cases it shows “Tails” and in two thirds of all cases “Heads”. Consider the following situation: each time you observe “Heads” you roll a fair die and note the number of dots x . If the coin shows “Tails” you do *not* roll the die but, instead, note $x = 0$ for the observed number of dots. Find the moment generating function of $X =$ “number of dots”.

Problem 3: numbers 2.30 (a) - (c) from the textbook.

Problems 4 to 6: numbers 2.34, 3.3 and 3.6 from the textbook.