Stochastics 9'th homework (Deadline: Nov 30. 12:15), maximum score: 1 point

Let $X_1, X_2 \dots X_7$ be identically distributed independent random variables. We know that their common distribution is optimistic geometric, however, we do not know the success probability p. We observe that $X_1 = 3$, $X_2 = 2$, $X_3 = 2$, $X_4 = 2$, $X_5 = 4$, $X_6 = 1$, $X_7 = 5$.

- (a) Depending on the parameter *p*, express the following probability: $L(p) = P(X_1 = 3, X_2 = 2, X_3 = 2, X_4 = 2, X_5 = 4, X_6 = 1, X_7 = 5)$
- (b) Take the logarithm of the expression you have received in part (a), i.e., consider $l(p) = \ln L(p)$ and via derivation with respect to p, determine the p for which l(p) is maximal (of course, L(p) is also maximal here)!