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4. (Overall) Suppose that X, Y, Z are i.i.d. uniform in $[0, 1]$. Show that $W = (XY)^Z$ is uniform.
5. (Overall) A boy tries to collect some special tennis cards. There are 100 different types. Each time he put 1\$ into the card machine, he will randomly get a tennis card. The type of the card is uniformly distributed. Let T be the total money he will spend to collect all different types of cards. What is the expectation and variance of T ?