2021级概率论期中考试

> Edited by Stellaria 2022/11/3

1. Let A, B and C be three events, P(A):P(B):P(C)=1/4 P(AB)=P(AC)=P(BC)=1/8 P(ABC)=1/16 The expression of the event "at least one of the events occurs" is _, the expression of the event "none of the events occurs" is __, it's probability , the expression of the event "at most one of the events occurs " is

2. For a sequence of independent trails each trail results in a success with probability p (0<p<1) Then the probability that at least 1 failure occurs in the first 3 trails is _

3. Suppose P(A) =0.5 P(B)=0.6 P(B|$\bar{A}$)=0.8 the probability of the event that both A and B occur is and the probability of the event that at least one of A and B occurs is

4. There are 6 red balls and a 4 yellow balls in a bag. Two balls are randomly withdrawn from the bag (no replacement) . Then the probability of the event that the second one is yellow is

5. Someone shoots a target and the hitting probability is 3/4 Then the probability that he does not hit the target until the third shooting is

6.**Suppose X is a discrete random variable with the following probability mass function**

X	-1	0	1	2
P	0.1	0.2	0.4	0.3

Then P(X = 1) = __ F(0.5) = __ P(-1< X ≤ 1) = __ P(-1 ≤ X < 2) = __ E(X) =__ D(X) = ___

7. Let X_1, X_2 be two random variables and $F_1(X), F_2(X)$ be their distribution function. Suppose $F(x) = aF_1(X) + bF_2(X)$ is a distribution function of a random variables then a and b should be _ and _ ,respectively