Answer on Question #75763 – Math – Statistics and Probability

Question

Write down the sample spaces for the following experiments:
(i) A coin is tossed and at the same time a die is rolled.
(ii) The order in which a mouse, a frog, and a rabbit arrive at a lake is observed.

Solution

(i) There are two different outcomes of a coin: Tail(T) and Head(H), for a die there are 6: 1, 2, 3, 4, 5, 6.

A result of the experiment can be represented by 2-coordinates, the first one corresponds to the coin, and the second to the die.
So the sample space looks as follows:
{(T,1), (H,1), (T,2), (H,2), (T,3), (H,3), (T,4), (H,4), (T,5), (H,5), (T,6), (H,6)}

(ii) Let us denote the mouse by M, the frog by F and the rabbit by R.
A result of the experiment can be represented by 3-coordinates, the first, the second, the third coordinates correspond to the first, the second, the third observed object respectively.
So the sample space is
{(M,F,R), (M,F,R), (F,M,R), (F,R,M), (R,M,F), (R,F,M)}.

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