

Question 3

You have two unfair coins, one with the probability of heads equal to p_1 and the other with the probability of heads equal to p_2 , where $p_2 \neq p_1$. In strategy A, you choose one coin at random and toss it twice. In strategy B, you toss both coins. What is the best strategy to maximize the probability of the event $E =$ "the two tosses are both heads"?

Solution

Let *head* and *tail* denote the results of a drop. Define the probability space as

$$\Omega = \{\text{head}, \text{tail}\}$$

$$\mathcal{F} = \mathcal{P}(\Omega)$$

$$\mathbb{P}: \text{ the probability measure on } \mathcal{F}$$

Let C_1 and C_2 denote the events of selecting the first mentioned coin and the second mentioned coin, respectively, then we have

Answer

□