

Assignment 1

AI1110: Probability and Random Variables

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Chapter 13 , Exercise 13.2

Question 17 : The Probability of obtaining an even prime number on each die , when a pair of dice is rolled is :

(A) 0

(B) $\frac{1}{3}$

(C) $\frac{1}{12}$

(D) $\frac{1}{36}$

Solution:

When a pair of dice is rolled The sample space is $\mathbb{S} = \{(x, y) : x, y \in \{1, 2, 3, 4, 5, 6\}\} \therefore n(\mathbb{S}) = 6 \times 6 = 36$.

Let Event E : an even prime number on each die. Since 2 is the only even prime number , $E = \{(2, 2)\}$

$\therefore n(E) = 1$

Required Probability = $P(E) = \frac{1}{36}$

(D) is the correct option.