

NCERT Q-13.2.4

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Question:- A fair coin and an unbiased die are tossed. Let A be the event 'head appears on the coin' and B be the event '3 on the die'. Check whether A and B are independent events or not.

Solution: A denotes the event coin showing head
B denotes the event die showing 3

$$P(A) = \frac{1}{2} \quad (1)$$

$$P(B) = \frac{1}{6} \quad (2)$$

$$P(AB) = \frac{1}{12} \quad (3)$$

$$P(A) \cdot P(B) = \left(\frac{1}{2}\right)\left(\frac{1}{6}\right) \quad (4)$$

$$= \frac{1}{12} \quad (5)$$

From (3) and (5) we get $P(AB) = P(A) \cdot P(B)$
Hence A and B are independent events.