

Mutually exclusive events

1. Are event1 E1 and E2 mutually exclusive?

$$E1 = \{2,4,6\}$$

$$E2 = \{4,5,6\}$$

2. A die is rolled. Let us define event E1 as the set of possible outcomes where the number on the face of the die is even and event E2 as the set of possible outcomes where the number on the face of the die is odd. Are event1 E1 and E2 mutually exclusive?

3. A card is drawn from a deck of cards. Events E1, E2, E3, E4 and E5 are defined as follows:

E1: Getting an 8

E2: Getting a king

E3: Getting a face card

E4: Getting an ace

E5: Getting a heart

- a) Are events E1 and E2 mutually exclusive?
- b) Are events E2 and E3 mutually exclusive?
- c) Are events E3 and E4 mutually exclusive?
- d) Are events E4 and E5 mutually exclusive?
- e) Are events E5 and E1 mutually exclusive?

4. We toss a coin three times. We define

$$E1 = \{\text{Even number of Heads}\}$$

$$E2 = \{\text{More Heads than Tails}\}$$

$$E3 = \{\text{Even number of Tails}\}$$

- a) Are E1 and E2 mutually exclusive?
- b) Are E2 and E3 mutually exclusive?
- c) Are E3 and E1 mutually exclusive?

Answers

1. No

2. Yes

3.

- a. Yes
- b. Not mutually exclusive
- c. Yes
- d. Not mutually exclusive
- e. Not mutually exclusive

4.

- a) Not mutually exclusive
- b) Yes
- c) Yes