

# Independent Events: Practice Problems

January 2023

1. Two dice are rolled. Let  $E$  be the event that sum 7 is rolled on the two dice and let  $F$  be the event that the first die is 1. Are  $E$  and  $F$  independent events?
2. A coin is flipped 6 times. Let  $E$  be the event that heads and tails come up an equal number of times. Let  $F$  be the event that heads and tails come up once each during the first two flips of the coin. Are  $E$  and  $F$  independent events?
3. Let  $E$  be the event that when a coin is flipped three times, we don't get all heads or all tails. Let  $F$  be the event that when a coin is flipped three times, heads comes up at most once. Are  $E$  and  $F$  independent events?
4. Faculty board, consisting of 15 professors (10 men and 5 women) and 10 students (5 men and 5 women), is randomly choosing a candidate to represent the faculty at the visiting day. Let  $E$  be the event of choosing a male candidate, and  $F$  be the event of choosing a professor. Are these events independent?
5. There is a 50% chance of rain on Saturday and a 50% chance of rain on Sunday. If having rain on Saturday and having rain on Sunday are independent events, then what is the probability of having no rain over the weekend?