

For problems, 1-4 a card is drawn from a deck and a) replaced before the second card is drawn and b) not replaced before the next card is drawn.

1. What is the probability that both cards pulled are face cards?
2. What is the probability that the first card drawn is a club and the second card is a red?
3. What is the probability that the first card drawn is a face card and the second card is not a face card?
4. Find the probability that the first card drawn is a face card and the second card is an even number.

Suppose you draw one card from a shuffled standard deck of cards. (Remember there are 52 cards in a deck. 13 hearts. 13 diamonds. 13 spades. 13 clubs. 4 of each face card)

1. $P(\text{card is a King})$
2. $P(\text{card is a club})$
3. $P(\text{card is a king and card is a club})$
4. $P(\text{card is king or card is a club})$
5. $P(\text{card is a king} \mid \text{card is a club})$
6. $P(\text{card is a club} \mid \text{card is a king})$

Are the events of drawing a king and drawing a club independent events? Support your answer.

Consider the table below, which shows how many juniors and seniors at a small high school have a driver's license.

	Juniors	Seniors	Total
Has Driver's License	60	55	115
Do not have License	20	15	35
Total	80	70	150

Suppose you pick a student at random. Find the following:

7. $P(\text{senior})$

10. $P(\text{has driver's license} \mid \text{senior})$

8. $P(\text{has a driver's license})$

11. $P(\text{senior and has driver's license})$

9. $P(\text{senior} \mid \text{has driver's license})$

12. $P(\text{senior or has driver's license})$

13. Are the events of selecting a senior and having a driver's license independent events? Explain your answer.

14. Are the events of selecting a senior and having a driver's license mutually exclusive? Explain your answer.

