

Group Work - Week 2

1 Consider rolling a fair six-sided die.

- (a) Let event A be rolling an even number. What is a trial for this scenario? What is the sample space? Is A a simple event? What is $P(A)$? What is \bar{A} , the complement of A ? What is $P(\bar{A})$? Is A unlikely? Is A unusual?

- (b) Let event A be rolling an even number. Let event B be rolling a 3. Are events A and B disjoint? What is $P(A \text{ or } B)$?

- (c) Consider rolling a die twice. Let event A be getting an even number on the first roll. Let event B be getting 5 or more on the second roll. Are events A and B independent? What is $P(A \text{ and } B)$?

2 Consider a standard deck of playing cards... 52 cards, 4 suits of 13 cards each, 3 cards of each suit are face cards, 2 suits are black (clubs and spades) and 2 are red (hearts and diamonds).

(a) Let event A be drawing a random card that is a diamond. What is a trial for this scenario? What is the sample space? Is A a simple event? What is $P(A)$? What is \bar{A} , the complement of A ? What is $P(\bar{A})$? Is A unlikely? Is A unusual?

(b) Let event A be drawing a random card that is a diamond. Let event B be drawing a random card that is a face card. Are events A and B disjoint? What is $P(A \text{ or } B)$?

(c) Consider drawing three cards. Let event A be the first card is a heart. Let event B be the second card is a club. Let event C be the third card is black. Are events A , B and C independent? What is $P(A \text{ and } B \text{ and } C)$?

3 The data set “hair_eye.csv” on D2L contains the hair and eye colors, as well as sex, of a sample of statistics students. Below is a table showing the distributions of students by eye color and gender.

Gender	Eye color			
	Blue	Brown	Green	Hazel
Female	114	122	31	46
Male	101	98	33	47

- (a) Let event A be a randomly selected student having green eyes. What is a trial for this scenario? What is the sample space? Is A a simple event? What is $P(A)$? What is \bar{A} , the complement of A ? What is $P(\bar{A})$? Is A unlikely? Is A unusual?

- (b) Let event A be a randomly selecting a student with brown or blue eyes. Let event B be a randomly selecting a female student. Are events A and B disjoint? What is $P(A \text{ or } B)$?

- (c) Consider randomly selecting two students. Let event A be the first student has blue eyes. Let event B be the second student has hazel eyes. Are events A and B independent? What is $P(A \text{ and } B)$?