Shepherd UNIVERSITY

Math 314
Statistics

Warmup Exercises

1. **Multiplication Rule**. Cards are drawn at random without replacement from a well-shuffled deck. Calculate the following probabilities.

a) First card is 2♡

b) Second card is 5♠

c) Second card is 5♠ given that the first was 2♡

d) First two cards are 2♡ followed by 5♠

e) First two cards are 2♡ and 5♠ (either order)

f) First two cards are an 8 followed by a 10

g) First five cards are four clubs followed by a 10

2. Two fair dice are tossed. Calculate the following probabilities

a) Sum is even given that it is less than 7

b) Sum is even and less than 7

c) One die shows a 6

d) Sum is four.

e) Sum is at most four.

f) Sum is greater than four.

g) Sum is at least four.

3. **Sum Rule**. Cards are drawn at random without replacement from a well-shuffled deck. Calculate the following probabilities.

a) First card is $K\heartsuit$ or J♣

b) First card is $\heartsuit$ or J♣

c) First card is an ace or $\diamondsuit$

d) First card is not an ace or is $\diamondsuit$

e) First two cards are both $\heartsuit$ or both 10

4. **Sum Rule**. Two dice are rolled. Calculate the following probabilities.

a) Sum is four or seven

b) Sum is four or even

c) Sum is four or seven or even

5. **Independent / Mutually Exclusive Events**. For each event A described below, describe events B for which A and B are i) independent, ii) dependent, iii) mutually exclusive, iv) not mutually exlusive.

a) It will snow in Shepherdstown on February 21 2012

b) Ron Paul will win the presidential election this year

c) Ron Paul will be the Republican candidate in the presidential election this year