Practice Sheet 3
Probability

1. Three dice are rolled together. What is the probability of getting at least two fours?

2. A box contains 3 red pencils, 2 blue pencils and 4 green pencils. Raj choses 2 pencils at random, without replacement.
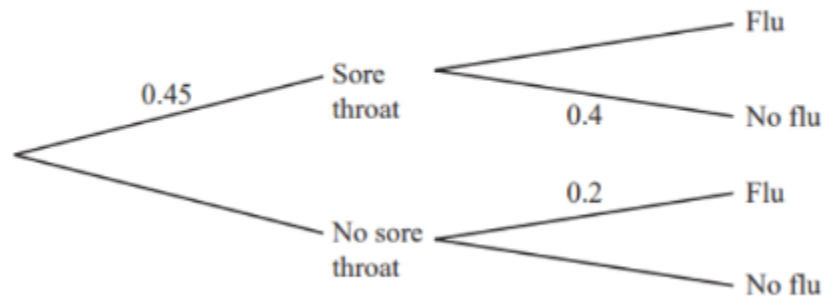
   Calculate the the probability that

      (a) they are both red
      (b) they are both the same color
      (c) Exactly one of the two pencils is green

3.

In a flu epidemic 45% of people have a sore throat.
If a person has a sore throat the probability of **not** having flu is 0.4.
If a person does not have a sore throat the probability of having flu is 0.2.

Calculate the probability that a person chosen at random has flu.

4. What is the probability of getting a sum 9 from two throws of a dice?

5. Out of 300 students in a school, 95 play cricket only, 120 play football only, 80 play volleyball only and 5 play no games. If one student is chosen at random, find the probability that

   (i) he plays volleyball
   (ii) he plays either cricket or volleyball
   (iii) he plays neither football nor volleyball.

6. A bag I contains 4 white and 6 black balls while another Bag II contains 4 white and 3 black balls. One ball is drawn at random from one of the bags, and it is found to be black. Find the probability that it was drawn from Bag I.

7. A die is rolled and a coin is tossed, find the probability that the die shows an odd number and the coin shows a head.

8. In a simultaneous throw of pair of dice. Find the probability of getting the total more than 7.

9. A letter is taken out at random from 'ASSISTANT' and another is taken out from 'STATISTICS'. The probability that they are the same letter is :

10. Suppose a box has 3 red marbles and 2 black ones. We select 2 marbles. What is the probability that the second marble is red given that the first one is red?

11. Suppose 36% of families own a dog, 30% of families own a cat, and 22% of the families that have a dog also have a cat. A family is chosen at random and found to have a cat. What is the probability they also own a dog?

12. A coin is tossed 5 times. What is the probability that the head appears an odd number of times?

13. Phan wants to take either a Biology course or a Chemistry course. His adviser estimates that the probability of scoring an A in Biology is 4/5 , while the probability of scoring an A in Chemistry is 1/7 . If Phan decides randomly, by a coin toss, which course to take, what is his probability of scoring an A in Chemistry?

14. From a pack of cards, three cards are drawn at random. Find the probability that each card is from a different suit.

15. A problem is given to three persons P, Q, R whose respective chances of solving it are 2/7, 4/7, 4/9 respectively. What is the probability that the problem is solved?

16. If a card is drawn at random from a pack of 52 cards, what is the chance of getting a spade or ace?

17. Suppose the test for HIV is 99% accurate in both directions and 0.3% of the population is HIV positive. If someone tests positive, what is the probability they actually are HIV positive?

18. Two dice are tossed. The probability that the total score is a prime number is what?