**Probability questions**

1. Three fair dice are rolled. What is the probability that the sum of the three outcomes is 10 given that the three dice show diﬀerent outcomes?
2. A bag contains four balls. One is blue, one is white and two are red. Someone draws together two balls at random from the bag. He looks at the balls and tells you that there is a red ball among the two balls drawn out. What is the probability the other ball drawn out is also red?
3. A fair coin is tossed n times. What is the probability of heads on the ﬁrst toss given that r heads were obtained in the n tosses?
4. A hand of 13 cards is dealt from a standard deck of 52 cards. What is the probability that it contains more aces than tens? How does this probability change when you have the information that the hand contains at least one ace?