

Math 4740 - Homework # 3 (Extra problems)

1. Suppose you roll two 6-sided dice over and over until either the sum of the dice is 6 or the sum of the dice is 7.
 - (a) What is the probability that you roll a sum of 6 before you roll a sum of 7?
 - (b) What is the probability that you roll a sum of 7 before you roll a sum of 6?
2. Suppose you repeat the following experiment. You take a standard 52 card deck and randomly draw a card. If you get an ace or a face card then you stop the experiment, otherwise you put the card back into the deck and shuffle the deck. You continually repeat this experiment until either an ace card comes up or a face card comes up. [Recall that a face card means either a Jack, Queen, or King.]
 - (a) What is the probability that an ace comes up before a face card?
 - (b) What is the probability that a face card comes up before an ace?