

Math 131 (Semester 111)  
**Quiz Two**

Name: \_\_\_\_\_  
ID Num: \_\_\_\_\_  
Serial Number: \_\_\_\_\_ Section Number: \_\_\_\_\_

1. Two standard dice are rolled and the faces are added. What is the probability that the sum is less than or equal to eight?
2. Three cards are chosen at random from a standard pack. What is the probability that they are all red?
3. If  $E$  and  $F$  are events, and  $P(E) = .5$ ,  $P(F) = .7$  and  $P(E \cup F) = .9$ , then what is  $P(E \mid F)$ ?
4. A five-card hand is dealt from a standard pack of 52. A hand is a *winner* if it contains 2 Eights, one Queen and no Aces. How many winning hands are there?

5. Bag I contains 2 white balls, 3 black balls and 1 red ball and Bag II contains 3 white balls, no black balls and 4 red balls. A bag is chosen at random and a ball is chosen from this bag and transferred to the second bag. Then a ball is chosen at random from the first bag. What is the probability that this ball is red?

6. Two dice with 4 faces - marked 1, 2, 2, 8 - is created. Each face is equally probable. Suppose two such dice are rolled.

(a) Let  $2_1$  and  $2_2$  represent the two faces of the dice with 2s on them. Write down the equiprobable sample space associated with this experiment.

(b) Write down the events  $E = \text{the sum is odd}$  and  $F = \text{the sum is greater than 3}$ .

(c) What is the probability of  $E$  given  $F$ ?

(d) What is the probability of  $F$  given  $E$ ?