QUIZ 4

(Math 258)

1. Find the values of each of the following quantities: (2 pts)

   (a) $P(5,3)$ (b) $C(6,4)$

2. How many ways are there for 8 men and 5 women to stand in a line so that no two women stand next to each other? (3 pts)
   (*Hint*: Position the men first, and then consider possible positions for women)

3. Use the Binomial Theorem to find the expansion of $(x+y)^5$. (3 pts)

4. What is the coefficient of x^6 in $(1+x)^7$, without doing the expansion? (2 pts)

5. When a single card is drawn from a 52-card, what is the probability of drawing a card other than a king? (2 pts)

6. If a number is selected randomly from the set $S = \{1, 2, \ldots, 10\}$, find the probability that the number will be odd or a multiple of 3. (3 pts)

7. What is the probability to roll a 2 in a 3-number biased dice, in which 1 is three times as likely to come up as 3 and 2 is two times as likely to come up as 3? (2 pts)

8. Each year, John adds to his book collection a number of new publications that he believes will be of great interest. He has categorized each of his 20-year acquisitions as hardcover or paperback, and as fiction and non-fiction. The number of books in the various categories are shown in the following table: (3 pts)

BOOKS	Fiction (F)	Non-Fiction (N)	Totals
Hardcover (H)	3	5	8
Paperback (P)	8	4	12
Totals	11	9	20

If John chooses randomly one of these 20 books for this evening's reading, find the probability that the book will be:

(a) Hardcover

(b) Fiction, given that it is hardcover

(c) Hardcover and fiction.