QUANTITATIVE METHODS
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Assignment 11

This assignment is due *Monday February 28, 2005*.

Question 1 (4 points)

Two dice are rolled, where one is black and the other is white. Find the following probabilities.

a) *P*(black die is an even number)
b) *P*(sum is 8)
c) *P*(both dice show even numbers)
d) *P*(number on black die is larger than number on white die)

Question 2 (4 points)

A box contains 10 marbles, 6 red and 3 blue and 1 pink. Two marbles are selected at random.

a) Find the probability that the first marble is red and the second one pink.
b) Find the probability that both marble are red.
c) Find the probability that both marbles are pink.
d) Find the probability that one of the two marbles is pink.

Question 3 (1 points)

A box contains 8 green marbles and 2 yellow marbles. Three marbles are selected at random. Find the probability that all three marbles are green.

Question 4 (9 points)

A radio executive considering a switch in his station's format collected from a random sample the following data on the radio preferences of various age groups of listeners.

	Age		
	Young Adult	Middle Age	Older Adult
Music	14	10	3
News/talk	7	15	11
Sports	7	9	5

Suppose one adult is selected at random from the sample taken by the radio executive. Find the following probabilities

a) P(Music and Middle Age)
b) P(Music or Middle Age)
c) P(Music given Middle Age)
d) P(Music or Sports)
e) P(Music and Sports)
f) Are the events Music and Middle Age independent? Support your answer.
g) Are the events Music and Middle Age mutually exclusive? Support your answer.
h) Are the events Music or Sports mutually exclusive? Support your answer.
i) Are the events Music or Sports independent? Support your answer.

Question 5 (5 points)

A single card is drawn from a deck of 52 cards. What is the probability that the card is

a) a king of diamonds?
b) a king or a diamond?
c) a face card?
d) a black face card?
e) not a queen?

Question 6 (3 points)

The academic adviser of a college informs us that in his college of 850 students, 115 students are in a QM class and 116 in a introduction to psychology class. If 55 students are in a QM and an introduction to psychology class, find the probability that if a student is picked a random, he will be in:

a) only a QM class
b) only a introduction to psychology class
c) at least one of the two classes.