

NAME:

MATH - 1, EXTRA CREDIT 4A - 12 POINTS
PRINT THESE 2 PAGES, SOLVE, AND TURN IN AT BRH-141
BY 11:45 A.M. ON 11/12/09 (THURSDAY)

When family with three children is chosen at random eight equally likely outcomes are possible. Complete the sample space below where b denotes a boy and g denotes a girl:

{	ggb	ggg	ggg	}
	gbb	bbb	bbb	

Let

A = event that there are at most two boys.

B = event that the second child is a girl.

C = event that the third child is a girl.

D = event that there is no boy in the family.

Compute

1. $P(A) =$

2. $P(B) =$

3. $P(\text{not } D) =$

4. $P(B \text{ or } C) =$

Go To Next Page

5. $P(C \text{ or } D) =$

6. Are A, C mutually exclusive? Why?

7. Are C, D mutually exclusive? Why?

8. (i) $P(B | A) =$

(ii) $P(D | C) =$

9. Are B, C independent? Why?

10. Are B and D independent? Why?

11. Byron Hopkins wants to dine at three different restaurants during a visit to a resort. There are 9 restaurants near the resort and only four of them serve vegetarian food. Find the number of ways that at least one of the restaurants he chooses will serve vegetarian food if

(a) order of selection is important?

(b) order of selection is not important?

12. Add 200 to the year of your birth and consider that year. It will be an year in the 22nd century. (For instance if you were born in 1983 you will be considering the year 2183). Assume that our current system of calendar is still being followed. Determine, with a detailed logical argument, the probability that there is a "Friday the 13th" in the year being considered.