

Math 151, Sample Exam 3

3rd April 2001

1. You flip three coins.
 - (a) List the sample space for this experiment.
 - (b) What is probability that you get exactly two heads?
2. Suppose you toss two dice and let A be the event that the sum of the results is at least 5 and B be the event that the number on the first die is odd. Find $P(A)$, $P(B)$, $P(A|B)$, $P(A \cap B)$, $P(A \cup B)$.
3. Both and wife have husband have genotype AO (with respect to blood type). Let S be the event that their child has blood type A, and let R be the event that their child has genotype AA.
 - (a) Find $P(S)$.
 - (b) Find $P(R|S)$. Are S and R independent events? Why?
4. A graduate student in botany performed an experiment in which 642 plants of *Arabidopsis thaliana* were classified according to the time of flowering (early, and late) and the growth rate (slow, moderate, fast). The results are presented in the following table:

	slow	moderate	fast
early	30	160	216
late	126	89	21

- (a) What is the probability that a randomly selected plant had early flowering time and fast growth rate?
- (b) How many plants had late flowering time or fast growth rate?
- (c) If you know that a plant has early flowering time, what is the probability that it has slow growth rate?