

## Probability and Statistics

### Home Work due Feb 3, 2005.

**Q1.** A random experiment consists of drawing a card from an ordinary deck of 52 cards. Each card is assigned the probability  $\frac{1}{52}$ .  $C_1$  is the event (set) consisting of all thirteen hearts and  $C_2$  is the event consisting of the 4 kings. Find  $P(C_1)$ ,  $P(C_2)$ ,  $P(C_1 \cup C_2)$  and  $P(C_1 \cap C_2)$ .

**Q2.** What is the probability that a random bridge hand consists of 6Spades, 4 Hearts , 2 Diamonds and and 1Club.

**Q3.** Three dice are rolled. Given that all the three face are distinct ( no number appears more than once) what is the probability that one of them is a 6.

**Q4.** A factory has three machines  $A$ ,  $B$  and  $C$ , that manufacture bolts. They produce respectively 25%, 35% and 40% of the total number of bolts and respectively 5%, 4% and 2% of their output is defective. A bolt drawn at random is found to be defective. Calculate the probabilities that it was produced by  $A$ ,  $B$  and  $C$ .