Stat 171 - Worksheet for Section 3.2

Name: _____

1. The table shows the results of a study in which researchers examined a child's IQ and the presence of a specific gene in the child. Find the probability that (1) a child does not have the gene and (2) a child does not have the gene, given that the child has a normal IQ.

   (a) Find the number of outcomes in the event and in the sample space.

   (b) Divide the number of outcomes in the event by the number of outcomes in the sample space

	Gene present	**Gene not present**	**Total**
High IQ	33	19	52
Normal IQ	39	11	50
Total	72	30	102

2. Determine whether the events are independent or dependent.

   (a) Smoking a pack of cigarettes per day (A) and developing emphysema, a chronic lung disease (B).

   (b) Tossing a coin and getting a head (A), then tossing the coin again and getting a tail.

      i. Determine whether the occurrence of the first event affects the probability of the second event.

      ii. State whether the events are independent or dependent.

3. The probability that a salmon swims successfully through a dam is 0.85. Find the probability that two salmon swim successfully through the dam.

   (a) Determine whether the events are independent or dependent.

   (b) Use the multiplication rule to find the probability.

4. Two cards are selected from a standard deck of 52 playing cards without replacement. Find the probability that they are both hearts.

   (a) Determine whether the events are independent or dependent.

   (b) Use the multiplication rule to find the probability.

5. The probability that a particular rotator cuff surgery is successful is 0.9. Find the following probabilities and determine whether the event is unusual.

   (a) Find the probability that three rotator cuff surgeries are successful.

   (b) Find the probability that none of the three rotator cuff surgeries are successful.

   (c) Find the probability that at least one of the three cuff surgeries is successful.

6. In a jury selection pool, 65% of the people are female. Of these 65%, one out of four works in a health field.

   (a) Find the probability that a random selected person from the jury pool is female and works in a health field. Is this event unusual?

   (b) Find the probability that a random selected person from the jury pool is female and does not work in a health field. Is this event unusual?