Table Number:_____ Group Name: _____

Group Members:_____ _____ _____

Mutually Exclusive Events and the Addition Rule

A probability experiment is conducted in which the sample space of the experiment is $S=\{1,2,3,4,5,6,7,8,9,10,11,12\}$. Let the event $E=\{2,3,4,5,6,7,\}$, event $F=\{5,6,7,8,9\}$, event $G=\{9,10,11,12\}$, and event $H=\{2,3,4\}$. Assume that each outcome is equally likely.

1. List the outcomes in *E* AND *F.* _____
   Are *E* and *F* mutually exclusive? Explain.

2. List the outcomes in *F* AND *G.*_____
   Are *F* and *G* mutually exclusive? Explain

3. List the outcomes in *F* or *G*. _____
   Now find $P(F \text{ or } G)$ in two ways:
   a) by counting the number of outcomes in *F* or *G*;

   b) by using the Addition Rule.

4. List the outcomes in *E* or *H.* _____
   Now find $P(E \text{ or } H)$ in two ways:
   a) by counting the number of outcomes in *E* or *H*

   b) by using the Addition Rule.

5. List the outcomes in *E* AND *G.*_____

a) Are E and G mutually exclusive? _____ Explain.

b) Find $P(E \text{ or } G)$ in two ways:

by counting the outcomes in *E* or *G*

by using the addition rule

6. List the outcomes in E^c :_____

Find $P(E^c)$