Table Number:_____ Group Name: _____

Group Members:_____ _____ _____

Independent Events (and other stuff) – Skill Builder

Remember the test for independent events: TWO EVENTS ARE INDEPENDENT WHENEVER $P(B|A)=P(B)$

1. Suppose that for events *A* and *B*, $P(A)=0.4$ and $P(B)=0.3$, and $P(A \text{ and } B)=0.1$

   a) Are A and B mutually exclusive?

   b) Are A and B independent?

   c) Find P(A or B)

   d) Find $P(B^c)$

   e) Find $P(A|B)$

   f) Find $P(B|A)$

2. Suppose that for events *A* and *B*, $P(A)=0.8$, $P(B)=0.4$, and $P(A \text{ and } B)=0.25$.

   a) Are A and B mutually exclusive?

   b) Are A and B independent?

   c) Find P(A or B)

   d) Find $P(B^c)$

   e) Find $P(A|B)$

   f) Find $P(B|A)$

3. Suppose that events *A* and *B* are independent. Suppose also that $P(A)=0.7$ and $P(B)=0.6$. Find $P(A \text{ and } B)$

4. Determine if the two events (A and B) described are **mutually exclusive, independent,** and/or **complements.** (It's possible that the two events fall into more than one of the three categories or none of them.)

   Roll two (six-sided) dice. Let *A* be the event that the first die is a 3 and B be the event that the sum of the two dice is 8.