**1. Is it possible that an event is independent of itself? If so, when?**

 Researchers and statisticians have found that the the only events that are independent of themselves are those events that occur with probability 0 Or with probability 1. This idea stems from the fact that 0 and 1 are the only probability values, that when squared, equal themselves.

#### 2. Is it always true that if A and B are independent events, then Ac and Bc are independent events? Show that it is, or give a counterexample ?

If A and B are independent then AC and BC are also independent and AC is independent of B

P(Ac∩Bc) =1−P(A∪B)

=1−P(A)−P(B)+P(A∩B)

=1−P(A)−P(B)+P(A)P(B)

=(1−P(A))(1−P(B))

=P(Ac)P(Bc).