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

   ANS: Yes, an event can be independent of itself.

   P(event)=1 (100% certainty that the event will occur eg death is after birth)

   p(event)=0 (impossible to happen , eg: 23 hras in day)

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.

   Ans: As A and B are independent

   P(A and B)= P(A)*P(B)

   also P(A') = 1-P(A)

   and P(A and B)= P(A or B)`

   Thus p(A` and B`)= P(A or B)`

   = 1-P(A and B)

   = 1-[P(A)+ P(B) -P(A and B)]

   =1-[P(A)+P(B) - P(A)*P(B)]

   =[1-P(B)] -P(A)[1-P(B)]

   =[1-P(B)] [1-P(A)]

   =P(B`)*P(A`)

   Thus P(Ac and Bc) are independent