1. A crime is committed by one of two suspects, A and B. Initially, there is equal evidence

against both of them. In further investigation at the crime scene, it is found that the guilty

party had a blood type found in 10% of the population. Suspect A does match this blood

type, whereas the blood type of Suspect B is unknown.

Let us consider;

X= A is guilty

Y= B is guilty

Ma = A Blood match guilty

Mb = B Blood match guilty

1. Given this new information, what is the probability that A is the guilty party?

**Answer:**

By using Bayes rule;

P(X/Ma) = P(Ma/X) P(X)/P(Ma/X) P(X) + P(Ma/Y) P(Y)

= (1.1/2)/ (1.1/2) + (1/10\* 1/2)

= 10/11**=**0.909

(b) Given this new information, what is the probability that B’s blood type matches that found at the crime scene?

**Answer:**

P(Mb/Mb) = P(Mb/Ma.X)P(X/Ma) + P(Mb/Mb.X)P(Y/Ma)

= 1/10\*10/11 + 1.1/11

= 2/11=0.181