Qiestion 1

1. In which forest should Oscar look to maximize the probability he finds his dog on the first day of the search?

At forest A find the dog = 0.4*0.25 = 0.1

At forest B find the dog = 0.6*0.15 = 0.09

So, Oscar go to A find the dog have greater probability

2. Given that Oscar looked in A on the first day but didn't find his dog, what is the probability that the dog is in A?

The probability that dog still in A = 0.4*(1-0.25)/(0.4*(1-0.25)+(0.6)*1) = 1/3

3. Oscar flips a fair coin to determine where to look on the first day and finds the dog on the first day, what is the probability that he looked in A?

The probability that find a dog in A = (0.5*0.25*0.4)/0.5*0.4*0.25+0.5*0.6*0.15 = 10/19

4. Oscar finally found his dog on the fourth day of the search. He looked in A for the first 3 days and in B on the fourth day. What is the probability he found his dog alive?

The probability find alive dog =(2/(2+1))*(2/(3+1))*(2/(4+1)) = 2/15

Question 2

The first day find the dog in B = 2/5*60 = 24

The second day find dog in A = 3/5*3/5*1/3*60 = 7.2

Didn't find the dog = 3/5*2/5*2/5*(-10) = -1.6

The first day cost = 2/5*(-3) = -1.2

The second day cost = 3/5*(-3) = -1.8

Additional cost = 3/5*(-3) = -1.8

So the expected value = 24+7.2-1.6-1.2-1.8-1.8 = 24.8