1. A doctor treating a patient issues a prescription for antibiotics and provides for two repeat prescriptions. The probability that the infection will be cleared by the first prescription is p1 =0.6. The probability that successive treatments are successful, given that previous prescriptions were not successful are p2 = 0.5, p3 = 0.4. Calculate the probability that

   (i) the patient is still infected after the third prescription

   (ii) the patient is cured by the second prescription.

   (iii) the patient is cured by the second prescription, given that the patient is eventually cured.

2. A driver passes through 3 traffic lights. The chance he/she will stop at the first is 1/2 , at the second 1/3 and at the third independently of what happens at any of the other lights.

   What is the probability that

   (i) the driver makes the whole journey without being stopped at any of the lights

   (ii) the driver is only stopped at the first and third lights

   (iii) the driver is stopped at just one set of lights.

   (iv) the driver stopped at the second set of lights, given he/she stopped at one set of lights.