

R Day 6

1. During a laboratory experiment, the average number of radioactive particles passing through a counter in 1 millisecond is 4. What is the probability that 6 particles enter the counter in a given millisecond?
2. In a certain industrial facility, accidents occur infrequently. It is known that the probability of an accident on any given day is 0.05 and accidents are independent of each other.
 - (a) What is the probability that in any given period of 4000 days there will be an accident on one day?
 - (b) What is the probability that there are at most three days with an accident?
3. In a manufacturing process where glass products are made, defects or bubbles occur, occasionally rendering the piece undesirable for marketing. It is known that, on average, 1 in every 1000 of these items produced has one or more bubbles. What is the probability that a random sample of 8000 will yield fewer than 7 items possessing bubbles?
4. On average, 3 traffic accidents per month occur at a certain intersection. What is the probability that in any given month at this intersection
 - (a) exactly 5 accidents will occur?
 - (b) fewer than 3 accidents will occur?
 - (c) at least 2 accidents will occur?
5. Plot the graph for Q. No. 2 and 4 for Random Variable against Probability Distribution function.
6. A company makes electric motors. The probability an electric motor is defective is 0.01. What is the probability that a sample of 300 electric motors will contain x defective motors, where $5 \leq x < 8$?