



Use the following information for questions 73 – 76

➔ Suppose that the probability that a person dies when he or she contracts a certain disease is 0.4. If we selected 10 persons who contracted this disease is randomly chosen. Let X represent the number of persons in the sample who contracted this disease.

Questions 73

The distribution of the random variable X is

Sol: Binomial

Questions 74

The parameters are

Sol: $n=10$, $p=0.4$

Questions 75

The mean number of persons in the sample who had disease equal

Sol: $\mu = np = 10 * 0.4 = 4$

Questions 76

The value of the probability $P[X=1]$ equal

Sol: $P[X = 1] = {}^{10}C_1 (0.4)^1 (0.6)^9$

SOLVED PROBLEMS – STAT 145

Part B: From Question No. 72 up to Question No. 90

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Use the following information for questions 77 - 80

➔ A study by the traffic police claims that only 20% of the drivers in Riyadh fasten their seat belts. A sample of 10 drivers in Riyadh has been taken. (Hint: X is a binomial variable.)

Questions 77

The probability of observing 2 or less drivers in Riyadh fasten their seat belts is equal to:

Sol: HOME WORK

Questions 78

The probability of observing more than 2 drivers in Riyadh fasten their seat belts is equal to:

Sol: HOME WORK

Questions 79

The probability of observing exactly 2 drivers in Riyadh fasten their seat belts is equal to:

Sol: HOME WORK

Questions 80

The probability of observing between 2 and 8 drivers in Riyadh fasten their seat belts is equal to:

Sol: HOME WORK

Use the following information for questions 81 - 83

➔ Suppose that the number of telephone calls received per day has a Poisson distribution with mean of 3 calls per day.

Questions 81

The probability that 2 calls will be received in a given day is

Sol: 0.224

Questions 82

The expected number of telephone calls received in a given week is

Sol: 21

Questions 83

The probability that at least 2 calls will be received in a period of 12 hours is

Sol: 0.442

Use the following information for questions 84 - 88

→ Suppose that the percentage of females in a certain population is 50%. A sample of 3 people is selected randomly from this population.

Questions 84

The probability that no females are selected is

Sol: 0.125

Questions 85

The probability that at most two females are selected is

Sol: 0.875

Questions 86

The mean value of the females in the sample is

Sol: 1.5

Questions 87

The variance of the number of females in the sample is

Sol: 0.75

Use the following information for questions 88- 90

→ At a checkout counter, customers arrive at an average of 1.5 per minute. Assuming Poisson distribution, then

Questions 88

The probability of no arrival in two minutes is

Sol: 0.0498

Questions 89

The mean value of the number of arrivals in two minutes is

Sol: 3

SOLVED PROBLEMS – STAT 145

Part B: From Question No. 72 up to Question No. 90

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Questions 90

The variance value of the number of arrivals in two minutes is

Sol: 3

With My Best Regards

Dr. M. Kayid

