



Yaşar University

Department of Mathematics

MATH2240 (Probability and Statistics for Engineers)

MidtermExam-2, 23.08.2021

1. (15) Jobs are sent to a printer at an average of 10 jobs per hour.
 - a) What is the expected time between the jobs?
 - b) What is the probability that the next job is sent within 4 minutes?
2. (15) It is known that 0.5% of the circuit boards from a production line are defective. If a random sample of 200 circuit boards is taken from this production line, use Poisson approximation to estimate the probability that the sample contains:
 - a) exactly 4 defective boards,
 - b) at least 3 defective boards
3. (20) The mean commuting time between a person's home and office is 18 minutes. The standard deviation is 4 minutes. Assume the variable is normally distributed.
 - a. Find the probability that it takes a person between 16 and 22 minutes to get to work
 - b. Find the probability that it takes a person more than 24 minutes to get to work
4. (15) 5% of the items manufactured on an assembly line are defective. If items are randomly selected one at a time and tested, what is the probability that the fourth nondefective item is found on the eighth trial?
5. (15) Measurements of the diameters of a random sample of 100 ball bearings made by a certain machine during one week showed a mean of 0.724 inches and standard deviation of 0.032 inches. Find 95 % confidence interval for the mean diameter of all the ball bearings.
6. (20) The scores on a university entrance examination are normally distributed with a mean of 500 and a standard deviation of 100. What is the lowest value of the top 5%.