

QUIZ 2 STAT319: Name:----- ID:-----

Q1: The lifetime of electrical appliances produced from an assembly line have the exponential distribution with a mean of 10 years.

(a) What is the probability that a randomly selected appliance will survive at least 15 years?

(b) If an appliance has survived for 5 years, what is the probability that it will survive for the next 15 years?

Q2: A quality control engineer is interested in the mean length of sheet insulation being cut automatically by machine. The length of insulation is normally distributed with mean length of 12 feet. It is known that the standard deviation in the cutting length is 0.16 feet. If the shortest 2.5% and the lengthiest 2.5% cut sheets are scrapped for some application, what are the minimum and maximum lengths of a cut sheet that will be classified as scrapped?

Q3. Suppose that a box contains 10% defective microchips. A purchaser decides to select 5 microchips one after another without replacement. Assume that the box has 30 microchips.

(a) What is the probability that two microchips in the sample will be defective?

(b) What is the probability that the first two microchips in the sample will be defective and the last three will be good?