

For exam 2, we covered sections 2.1-2.4 and 3.1-3.4 in your eBook.

Problems:

1) A license plate consists of 3 letters then 3 digits. The letters may not contain Q, X or V, and may repeat. The digits may repeat. How many possible license plates are there?

2) How many ways are there to arrange any 5 cards chosen from a standard deck of 52 cards?

3) If you have 3 identical blue blocks, 5 identical red blocks and 6 identical yellow blocks, how many ways are there to arrange them in a row?

4) How many ways can you choose 2 of the red blocks in problem 3? What is the probability of getting 2 red blocks if you randomly pick two blocks in problem 3 above?

5) If you have the blocks in problem 3 and you pick 3 blocks, what is the probability of getting one red block or two red blocks in your choice of 3 blocks?

6) Manufacturing errors that cause defective transistors are independent. The probability of a transistor being defective is 0.06 and 20 transistors are pulled aside and tested. Is this an example of repeated Bernoulli trials? Why or why not?

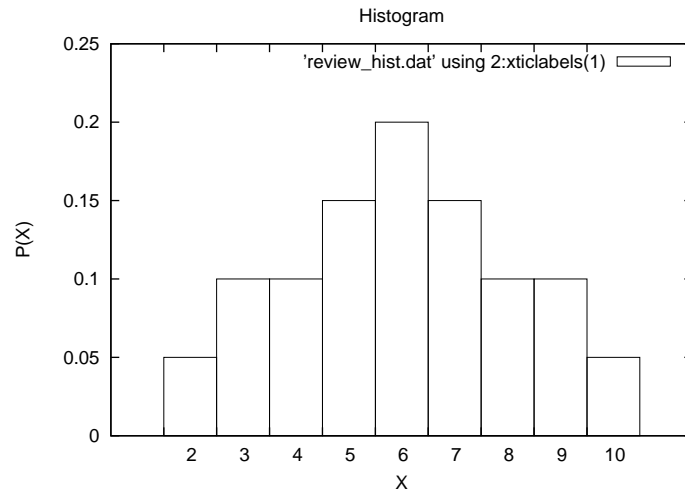
7) What is the probability of getting exactly 4 defective transistors in the lot?

8) Given the information in problem 6, what is the probability of between 2 and 12 defective transistors in the lot? Note, this includes 2 and 12.

9) If a random variable X is assigned to each person in this room and measures the amount of time studying every week in minutes, is it finite discrete, infinite discrete or continuous?

10) If you roll two 6-sided die infinitely many times, each time observing the sum of the two numbers on top (this is your random variable X), is this finite discrete, infinite discrete or continuous?

11) Given the following histogram, calculate $P(3 < X < 8)$, the expected value, $E(X)$ and the variance, $\text{Var}(X)$.



12) Find the sample mean, median, mode, standard deviation, and variance of these 11 observations: $\{11, 11, 12, 12, 12, 13, 13, 14, 15, 16, 16\}$

13) What would change if question 12, above, said population instead of sample?

14) The heights of male students at a university are normally distributed with a mean of 168 cm and a standard deviation of 4 cm. What percentage of male students are taller than 160 cm?

15) Given the information in problem 14, what is the shortest a male student can be to be in the tallest 60% of students?

16) People are observed eating french fries. The the mean number eaten is 28 and the standard deviation is 4 french fries, what is the minimum probability that a person from this group eats between 22 and 34 french fries?