Problem sheet 5

Problem 1. Assume a random variable X follow the normal distribution with mean 0 and standard deviation 3. What is the probability that X takes on a value between -0.5 and 0.5?

[1] 0.1323677

Problem 2. Suppose the total time taken to complete an assignment is a random variable having a normal distribution of mean (μ) 36 hours and standard deviation (σ) of 2 hours. What is the probability of completing the assignment in the time period of

(a) less than 24 hours

(b) between 34 and 38 hours

(a): 9.865876e-10

(b): 0.6826895

Problem 3. Suppose a biased coin is tossed 100 times. What is the prbability of obtaining more than 55 heads if the probabilty of head in a sigle flip is 0.6?

[1] 0.8210984

Problem 4. A fair die is rolled 10 times; find the probability of getting six exactly 3 times.

[1] 0.1550454

Problem 5. A customer help center receives on average 4 calls every hour.

(a) What is the probability that it will receive at most 5 calls every hour?

(b) What is the probability that it will receive at least 3 calls every hour?

(a): 0.7851304

(b): 0.5665299

Problem 6. On the average, a certain computer part lasts ten years. The length of time the computer part lasts is exponentially distributed.

(a) What is the probability that a computer part lasts more than 7 years?

(b) What is the probability that a computer part lasts between nine and 11 years?

(a): 0.4965853

(b): 0.07369858