

Probability and Statistics - IT2120 – Lab Sheet 07

Name: Ayodhya M.A.H.A

IT Number: IT24102395

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IT24102395_Lab_07.R ×
Source on Save
Run

1 #Q1
2 #Uniform Distribution
3 #Let X - The number of minutes the train arrives after 8:00 a.m.
4 #P(10 <= X <= 25) = P(X <= 25) - P(X <= 10)
5 punif(25, min = 0, max = 40, lower.tail = TRUE) - punif(10, min = 0, max = 40, lower.tail = TRUE)
6
7 #Q2
8 #Exponential Distribution
9 #Let X - The time (in hours) to complete a software update
10 #P(X <= 2)
11 pexp(2, rate = 0.33, lower.tail = TRUE)
12
13 #Q3
14 #Normal Distribution
15 #i) P(X > 130) = 1 - P(X <= 130)
16 1 - pnorm(130, mean = 100, sd = 15, lower.tail = TRUE)
17 #ii) P(X <= x) = 0.95
18 qnorm(0.95, mean=100, sd=15, lower.tail=TRUE)
19
```

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R • R 4.5.1 • ~/
> #Q1
> #Uniform Distribution
> #Let X - The number of minutes the train arrives after 8:00 a.m.
> #P(10 <= X <= 25) = P(X <= 25) - P(X <= 10)
> punif(25, min = 0, max = 40, lower.tail = TRUE) - punif(10, min = 0, max = 40, lower.tail = TRUE)
[1] 0.375
>
> #Q2
> #Exponential Distribution
> #Let X - The time (in hours) to complete a software update
> #P(X <= 2)
> pexp(2, rate = 0.33, lower.tail = TRUE)
[1] 0.4831487
>
> #Q3
> #Normal Distribution
> #i) P(X > 130) = 1 - P(X <= 130)
> 1 - pnorm(130, mean = 100, sd = 15, lower.tail = TRUE)
[1] 0.02275013
> #ii) P(X <= x) = 0.95
> qnorm(0.95, mean=100, sd=15, lower.tail=TRUE)
[1] 124.6728
```