

IT2120 - Probability and Statistics

Lab Sheet 06

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01)

```
#Question 1
## 1) Uniform(0, 40) minutes:  $P(10 \leq X \leq 25)$ 
p1 <- punif(25, min = 0, max = 40) - punif(10, min = 0, max = 40)
p1

> #Question 1
> ## 1) Uniform(0, 40) minutes:  $P(10 \leq X \leq 25)$ 
> p1 <- punif(25, min = 0, max = 40) - punif(10, min = 0, max = 40)
> p1
[1] 0.375
```

02)

```
#Question 2
#Exponential rate  $\lambda = 1/3$  per hour:  $P(t \leq 2)$ 
p2 <- pexp(q = 2, rate = 1/3)
p2

> #Question 2
> #Exponential rate  $\lambda = 1/3$  per hour:  $P(t \leq 2)$ 
> p2 <- pexp(q = 2, rate = 1/3)
> p2
[1] 0.4865829
```

03) i)

```
#Question 3
#Normal( $\mu = 100$ ,  $\sigma = 15$ )
#part (i)  $P(X > 130)$ 
p3_i <- 1 - pnorm(130, mean = 100, sd = 15)
p3_i

> #Question 3
> #Normal( $\mu = 100$ ,  $\sigma = 15$ )
> #part (i)  $P(X > 130)$ 
> p3_i <- 1 - pnorm(130, mean = 100, sd = 15)
> p3_i
[1] 0.02275013
```

ii)


```
#part(ii) 95th percentile
q3_ii <- qnorm(0.95, mean = 100, sd = 15)
q3_ii
> #part(ii) 95th percentile
> q3_ii <- qnorm(0.95, mean = 100, sd = 15)
> q3_ii
[1] 124.6728
```


Environment


History


Connections


Tutorial






 Import Dataset ▾

 142 MiB ▾




▮ ▮ ▮ List ▾



R ▾

Global Environment ▾



values

| | |
|-------|--------------------|
| p1 | 0.375 |
| p2 | 0.486582880967408 |
| p3_i | 0.0227501319481792 |
| q3_ii | 124.672804404272 |