**IT24102280**

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# IT2120 - Probability and Statistics – Lab Sheet 07

## Exercise

1)

```
  3  # 1. Train arrival (Uniform distribution)
  4  # P(10 ≤ X ≤ 25)
  5  punif(25, min=0, max=40, lower.tail=TRUE) - punif(10, min=0, max=40, lower.tail=TRUE)
  6
  7
```

```
> # 1. Train arrival (Uniform distribution)
> # P(10 ≤ X ≤ 25)
> punif(25, min=0, max=40, lower.tail=TRUE) - punif(10, min=0, max=40, lower.tail=TRUE)
[1] 0.375
```

2)

```
  8  # 2. Software update time (Exponential distribution)
  9  # P(X ≤ 2)
 10  pexp(2, rate=1/3, lower.tail=TRUE)
 11
```

```
> # 2. Software update time (Exponential distribution)
> # P(X ≤ 2)
> pexp(2, rate=1/3, lower.tail=TRUE)
[1] 0.4865829
```

3)

```
 13  # 3. IQ scores (Normal distribution)
 14
 15  # (i) P(X > 130)
 16  pnorm(130, mean=100, sd=15, lower.tail=FALSE)
 17
 18  # (ii) 95th percentile IQ score
 19  qnorm(0.95, mean=100, sd=15, lower.tail=TRUE)
```

```
> # (i) P(X > 130)
> pnorm(130, mean=100, sd=15, lower.tail=FALSE)
[1] 0.02275013
>
> # (ii) 95th percentile IQ score
> qnorm(0.95, mean=100, sd=15, lower.tail=TRUE)
[1] 124.6728
```