Exercise

1. A train arrives at a station uniformly between 8:00 a.m. and 8:40 a.m. Let the random variable X represent the number of minutes the train arrives after 8:00 a.m. What is the probability that the train arrives between 8:10 a.m. and 8:25 a.m.?

```
> setwd ("C:\\Users\\nayan\\OneDrive\\Desktop\\IT24201016_Lab_7")
>
>
> punif(25,min=0,max=40)-punif(10,min=0,max=40)
[1] 0.375
>
```

2. The time (in hours) to complete a software update is exponentially distributed with rate λ = 1

```
> pexp(2, rate = 1)
[1] 0.8646647
>
```

3 . Find the probability that an update will take at most 2 hours.

```
> pexp(2,rate =1/3)
[1] 0.4865829
>
```

3. Suppose IQ scores are normally distributed with a mean of 100 and a standard deviation of 15.

i. What is the probability that a randomly selected person has an IQ above 130?

```
> pnorm(130,mean=100, sd=15, lower.tail =FALSE)
[1] 0.02275013
>
```

ii. What IQ score represents the 95th percentile?

```
> qnorm(0.95, mean=100,sd=15)
[1] 124.6728
```