```r
setwd("C://Users//New//OneDrive//Desktop//IT24103976")
##Q1

prob_q1 <- (25 - 10) / (40 - 0)
cat("Q1: Probability train arrives between 8:10 and 8:25 =", prob_q1, "\n")

```

```
> setwd("C://Users//New//OneDrive//Desktop//IT24103976")
> ##Q1
>
> prob_q1 <- (25 - 10) / (40 - 0)
> cat("Q1: Probability train arrives between 8:10 and 8:25 =", prob_q1, "\n")
Q1: Probability train arrives between 8:10 and 8:25 = 0.375
>
```

prob_q1	0.375

```r
# Q2

lambda <- 1/3
prob_q2 <- pexp(2, rate=lambda)
cat("Q2: Probability update takes at most 2 hours =", prob_q2, "\n")
```

```
> lambda <- 1/3
> prob_q2 <- pexp(2, rate=lambda)
> cat("Q2: Probability update takes at most 2 hours =", prob_q2, "\n")
Q2: Probability update takes at most 2 hours = 0.4865829
```

lambda	0.333333333333333
prob_q1	0.375
prob_q2	0.486582880967408

```r
# Q3

mean_iq <- 100
sd_iq <- 15
```

```
> mean_iq <- 100
> sd_iq <- 15
```

mean_iq	100
sd_iq	15

```r
prob_q3_i <- 1 - pnorm(130, mean=mean_iq, sd=sd_iq)
cat("Q3(i): Probability IQ > 130 =", prob_q3_i, "\n")
```

```
> prob_q3_i <- 1 - pnorm(130, mean=mean_iq, sd=sd_iq)
> cat("Q3(i): Probability IQ > 130 =", prob_q3_i, "\n")
Q3(i): Probability IQ > 130 = 0.02275013
```

mean_iq	100
prob_q3_i	0.0227501319481792
sd_iq	15

```r
iq_95 <- qnorm(0.95, mean=mean_iq, sd=sd_iq)
cat("Q3(ii): 95th percentile IQ score =", iq_95, "\n")
```

```
> iq_95 <- qnorm(0.95, mean=mean_iq, sd=sd_iq)
> cat("Q3(ii): 95th percentile IQ score =", iq_95, "\n")
Q3(ii): 95th percentile IQ score = 124.6728
```

iq_95	124.672804404272
mean_iq	100
prob_q3_i	0.0227501319481792
sd_iq	15