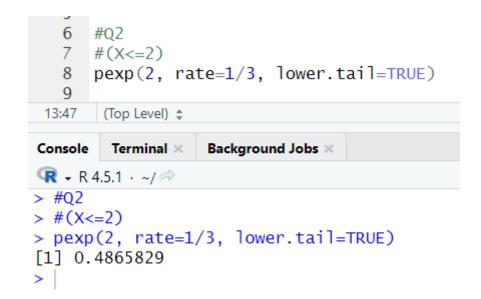
A train arrives at a station uniformly between 8:00 a.m. and 8:40 a.m. Let the random variable X represent the number of minutes the train arrives after 8:00 a.m. What is the probability that the train arrives between 8:10 a.m. and 8:25 a.m.?

```
1 #Exercise
2 #Q1
3 #P(25>=X>=10) --> P(X<=25) - P(X<=10)
4 punif(25, min=0, max=40, lower.tail = TRUE) - punif(10, min=0, max=40, lower.tail=TRUE)

8:29 (Top Level) $

Console Terminal & Background Jobs & Pexample Properties For State Properties For Properties
```

2. The time (in hours) to complete a software update is exponentially distributed with rate $\lambda = \frac{1}{3}$. Find the probability that an update will take at most 2 hours.



- 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?
 - ii. What IQ score represents the 95th percentile?

```
9
  10
      #Q3
  11
      #i.
  12
      \#mean = 100, \#std = 15 P(X>130) --> 1-P(X<=130)
      1-pnorm(130, mean=100, sd=15, lower.tail=TRUE)
  13
  14
  15
      #ii.
      qnorm(0.95, mean=100, sd=15)
  16
       (Top Level) $
 14:1
Console
        Terminal ×
                   Background Jobs ×
Q → R 4.5.1 · ~/ 🕏
> #Q3
> #i.
> #mean = 100, #std = 15 P(X>130) --> 1-P(X<=130)
> 1-pnorm(130, mean=100, sd=15, lower.tail=TRUE)
[1] 0.02275013
>
> #ii.
> qnorm(0.95, mean=100, sd=15)
[1] 124.6728
> |
```