

Homework 1 590610644

```
require(ggplot2)
```

```
# 1
```

```
x <- seq(0, 6.5, length.out = 10000)
```

```
den <- dexp(x, rate = 1.5)
```

```
df <- data.frame(x = x, y = den)
```

```
pos1To2Seq <- seq(from = 1, to = 2, by = 0.01)
```

```
pos1To2 <- data.frame(x = pos1To2Seq,  
                      y = dexp(pos1To2Seq, rate = 1.5))
```

```
pos1To2 <- rbind(c(min(pos1To2$x), 0),
```

```
                pos1To2,
```

```
                c(max(pos1To2$x), 0))
```

```
p <- ggplot(df, aes(x = x)) +
```

```
  geom_line(aes(y = den)) +
```

```
  ggtitle('Patsakorn Towatrakool & 590610644') +
```

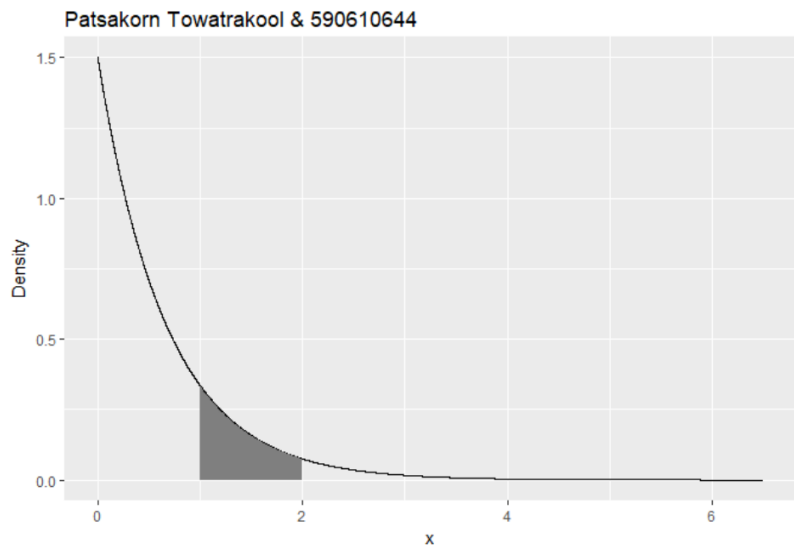
```
  labs(x='x', y='Density')
```

```
p + geom_polygon(data = pos1To2, aes(x = x, y = y), fill = "grey50")
```

```
# 2
```

```
pexp(2, rate=1.5) - pexp(1, rate=1.5)
```

```
1 require(ggplot2)
2
3 # 1
4 x <- seq(0, 6.5, length.out = 10000)
5 den <- dexp(x, rate = 1.5)
6 df <- data.frame(x = x, y = den)
7
8 pos1To2Seq <- seq(from = 1, to = 2, by = 0.01)
9 pos1To2 <- data.frame(x = pos1To2Seq, y = dexp(pos1To2Seq, rate = 1.5))
10 pos1To2 <- rbind(c(min(pos1To2$x), 0),
11                pos1To2,
12                c(max(pos1To2$x), 0))
13
14 p <- ggplot(df, aes(x = x)) +
15   geom_line(aes(y = den)) +
16   ggtitle('Patsakorn Towatrakool & 590610644') +
17   labs(x='x', y='Density')
18
19 p + geom_polygon(data = pos1To2, aes(x = x, y = y), fill = "grey50")
20
21 # 2
22 pexp(2, rate=1.5) - pexp(1, rate=1.5)
23
```



```
> pexp(2, rate=1.5) - pexp(1, rate=1.5)
[1] 0.1733431
```