Chapter 6: Continuous Probability Distributions

Example 1

```
punif(60, min = 0, max = 90) - punif(30, min = 0, max = 90)
```

Example 2

```
punif(75, min = 0, max = 90) - punif(55, min = 0, max = 90)
```

Example 3

```
pnorm(0)
```

Example 4

```
pnorm(-0.75)
```

Example 5

```
pnorm(1.25)
```

Example 6

```
pnorm(1.96)
```

Example 7

```
1 - pnorm(1.05)

pnorm(1.05, lower.tail =  FALSE)
```

Example 8

```
1 - pnorm(-0.25)

pnorm(-0.25, lower.tail = FALSE)
```

Example 9

```
1 - pnorm(-1.96)

pnorm(-1.96, lower.tail = FALSE)
```

Example 10

```
pnorm(1.96) - pnorm(1)
```

Example 11

```
pnorm(2.05) - pnorm(-1.15)
```

Example 12

```
pnorm(-0.65) - pnorm(-1.20)
```

Example 13

```
qnorm(0.95)
```

Example 14

```
qnorm(0.90)
```

Example 15

```
qnorm(0.2119)
```

Example 16

```
qnorm(0.0100)
```

Example 17

```
pnorm(-0.3333)

pnorm(95, 100, 15)
```

Example 18

```
1 - pnorm(0.6666)

1 - pnorm(110, 100, 15)
```

Example 19

pnorm(0.6666) – pnorm(-0.6666)

pnorm(110, 100, 15) - pnorm(90, 100, 15)

Example 20

qnorm(0.99)

qnorm(0.99, 100, 15)

Example 21

qnorm(0.10)

qnorm(0.10, 100, 15)

Example 22

pexp(2, 1/3)

pexp(5, 1/3)

1 - pexp(3, 1/3)

1 - pexp(6, 1/3)

pexp(5, 1/3) - pexp(2, 1/3)

Example 23

```
1 - pexp(5, 1/3)

dpois(0, 5/3)
```

End-of-Chapter 6 Exercises

Exercise 1

```
1 - punif(235000, min = 200000, max = 250000)
```

Exercise 2

```
pnorm(2.5, 2.09, 0.48) - pnorm(1.5, 2.09, 0.48)

pnorm(1, 2.09, 0.48)

qnorm(0.95, 2.09, 0.48)
```

Exercise 3

```
pnorm(180, 200, 20)

pnorm(220, 200, 20) - pnorm(180, 200, 20)

pnorm(240, 200, 20)
```

Exercise 4

```
pnorm(12, 15, 2, lower.tail = FALSE)

pnorm(16, 15, 2) - pnorm(12, 15, 2)

qnorm(0.90, 15, 2)
```

Exercise 5

```
dpois(0, 3)
```

R Functions

1. pexp(x,1/μ) Provides the cumulative exponential probability of x for the exponential probability distribution with a mean of μ.

2. pnorm(x,μ,σ) Provides the cumulative normal probability of x for the normal probability distribution with mean μ and standard deviation σ.

3. pnorm(z) Provides the cumulative standard normal probability of z for the standard normal probability distribution with mean $\mu = 0$ and standard deviation $\sigma = 1$. Since no values are defined (as arguments) for μ and σ, R assumes the function pnorm() is the standard normal.

4. punif(x,a,b) Provides the cumulative uniform probability of x for the uniform probability distribution with a as a lower bound, b as an upper bound.

5. qnorm(α, μ, σ) Provides the value of x that cuts off an area of α in the lower tail of the normal probability distribution with mean μ and standard deviation σ.

6. qnorm(α) Provides the value of z that cuts off an area of α in the lower tail of the standard normal probability distribution.

7. qunif(α,a,b) Provides the value of x that cuts off an area of α in the lower tail of the uniform probability distribution defined between a and b.