

# Chapter 7: Point Estimation and Sampling Distributions

Example 1

$\text{choose}(5, 2)$

$1 / \text{choose}(5, 2)$

Example 2

$1 / \text{choose}(10, 2)$

Example 3

$\text{choose}(1250, 30)$

Example 4

$\text{pnorm}(64, 63, 7 / \sqrt{30}) - \text{pnorm}(62, 63, 7 / \sqrt{30})$

Example 5

$\text{pnorm}(65, 63, 7 / \sqrt{30}) - \text{pnorm}(61, 63, 7 / \sqrt{30})$

Example 6

$$\text{pnorm}(66, 63, 7 / \sqrt{30}) - \text{pnorm}(60, 63, 7 / \sqrt{30})$$

Example 7

$$\text{pnorm}(64, 63, 7 / \sqrt{60}) - \text{pnorm}(62, 63, 7 / \sqrt{60})$$

Example 8

$$\begin{aligned} &\text{pnorm}(0.72, 0.62, \sqrt{0.62 * 0.38 / 30}) - \\ &\quad \text{pnorm}(0.52, 0.62, \sqrt{0.62 * 0.38 / 30}) \end{aligned}$$

Example 9

$$\begin{aligned} &\text{pnorm}(0.77, 0.62, \sqrt{0.62 * 0.38 / 30}) - \\ &\quad \text{pnorm}(0.47, 0.62, \sqrt{0.62 * 0.38 / 30}) \end{aligned}$$

Example 10

$$\begin{aligned} &\text{pnorm}(0.72, 0.62, \sqrt{0.62 * 0.38 / 60}) - \\ &\quad \text{pnorm}(0.52, 0.62, \sqrt{0.62 * 0.38 / 60}) \end{aligned}$$

## End-of-Chapter 7 Exercises

Exercise 1

```
E7_1 <- tv_hours[sample(nrow(tv_hours), 9), ]
```

```
head(E7_1, 3)
```

```
mean(E7_1)
```

```
sd(E7_1)
```

Exercise 2

```
E7_3 <- exit[sample(nrow(exit), 25), ]
```

```
mean(E7_3)
```

Exercise 3

```
pnorm(27500, 27000, 4500 / sqrt(121)) -  
  pnorm(26500, 27000, 4500 / sqrt(121))
```

```
pnorm(27250, 27000, 4500 / sqrt(121)) -  
  pnorm(26750, 27000, 4500 / sqrt(121))
```

#### Exercise 4

```
pnorm(0.14, 0.12, sqrt((0.12) * (0.88) / (400))) -  
  pnorm(0.10, 0.12, sqrt((0.12) * (0.88) / (400)))
```

```
pnorm(0.14, 0.12, sqrt((0.12) * (0.88) / (800))) -  
  pnorm(0.10, 0.12, sqrt((0.12) * (0.88) / (800)))
```

#### Exercise 5

```
pnorm(0.05, 0.09, sqrt((0.09) * (0.91) / (100)))
```

## R Functions

- . abs() Returns the absolute value of the expression within the parentheses.
- . data[sample(nrow(data),n),] Selects a random sample of size n from a data object named data.

## Appendix

```
C7_1 <- tv_hours[sample(nrow(tv_hours), 5), ]
```

```
C7_2 <- tv_hours[sample(nrow(tv_hours), 10), ]
```

```
C7_3 <- temps[sample(nrow(temps), 7), ]
```