Lab6

Exercises

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Exercise 1

A

Compare the PDF's and the CDF's of the following Uniform continuous random variables (hint: see page 3 of the slides).

Calculate: 1. $X1 \sim U(0, 1)$

```
a <- 0
b <- 1
seq <- seq(a-0.5,b+0.5,0.01)
x1 <- data.frame(
         x = seq,
         pdf = dunif(seq,a,b),
         cdf = punif(seq,a,b)
)
```

2. $X2 \sim U(-3, 2)$

```
a <- -3
b <- 2
seq <- seq(a-0.5,b+0.5,0.01)
x2 <- data.frame(
         x = seq,
         pdf = dunif(seq,a,b),
         cdf = punif(seq,a,b)
)
```

3. $X3 \sim U(2, 4)$

```
a <- 2
b <- 4
seq <- seq(a-0.5,b+0.5,0.01)
x3 <- data.frame(
         x = seq,
         pdf = dunif(seq,a,b),
         cdf = punif(seq,a,b)
)
```

4. $X4 \sim U(0.8, 2.5)$

```
a <- 0.8
b <- 2.5
seq <- seq(a-0.5,b+0.5,0.01)
x4 <- data.frame(
         x = seq,
         pdf = dunif(seq,a,b),
         cdf = punif(seq,a,b)
)
```

B

Create a new figure with two vertical panels: first row PDFs, second row CDFs (hint: use the library cowplot and the plot_grid() function to arrange multiple ggplot objects).