BIOS6621-Homework2-20190909

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# **BIOS6621** *Homework2*

## Basic Graphing

### Question1:

Ex 1: Add a red horizontal line at mean(y1) and a blue horizontal line at mean(y2)

Ex 2: Move the legend up on the graph so it looks better and add red and blue points in front of the text

x <- c(1,3,4,6,9,10,11,14)  
y1 <- c(102,101,89,92,81,80,75,72)  
y2 <- c(88,85,81,80,76,71,66,64)  
plot( x, y1, xlab = 'x label', ylab = 'y label', pch = 19,   
 type = "b", cex = 0.7, col = "red", lty = 4, lwd = 3,  
 xlim = c(0, 15), ylim = c(60, 110) )  
points( x, y2, pch = "o", cex = 1, col = "blue", lty = 1,   
 type = "b", lwd = 3 )  
abline( h = mean(y1), cex = 0.7, lty = 1, col = "red", lwd = 3)  
abline( h = mean(y2), cex = 0.7, lty = 1, col = "blue", lwd = 3)  
legend( "topright", leg = c("Female", "Male"),   
 text.col = c("red", "blue"), col = c("red", "blue"),  
 bty = "n", pch = c(19, 111), cex = c(1, 1) )

## 

As shown in **Figure**, for x in the range of 0~15, there is a decline tendency of y in both gender. Both gender’s y (y1 represents Female’s; y2 represents Male’s) decreases reponding to the increas of x. Comparatively, each Male’s y (y2) is lower than its Female counterpart (y1), at certain given x.

The mean function:

As shown in **Figure**, the red line shows the average of y for Female, y1 = 86.5; the blue line shows the average of y for Male, y2 =76.375

### Question2:

The summary of x, y1, and y2 is shown below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Min. | 1st Qu. | Median | Mean | 3rd Qu. | Max. |
| x | 1 | 3.75 | 7.5 | 7.250 | 10.25 | 14 |
| y1 | 72 | 78.75 | 85.0 | 86.500 | 94.25 | 102 |
| y2 | 64 | 69.75 | 78.0 | 76.375 | 82.00 | 88 |