Traditional S Graphics Answers to Exercises

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1. [**easy**] This is just to force you to turn off the default axes and produce your own y-axis. You also need to manually set the y-axis range to get the points more towards the "middle" of the plot.

   ```
   > plot(x, y, ylim = c(0.5, 2.5), axes = FALSE)
   > box()
   > axis(1)
   > axis(2, at = sort(as.numeric(unique(y))), labels = levels(y))
   ```

2. [**easy**]

   ```
   > mp <- barplot(v, density = 10, xlab = "Week Number", ylab = "Number of Viewers",
   +     col = 1)
   > lines(mp[8:length(v)], mean.8, lty = 1, lwd = 2, col = 2)
   > points(mp[8:length(v)], mean.8, pch = 16, col = 2)
   > mtext(as.character(1:20), side = 1, at = mp, line = 0)
   ```

3. [**medium**]

   ```
   > z <- t(apply(y, 1, "cumsum"))
   > xvals <- 1:nrow(z)
   > par(fig = c(0, 0.8, 0, 1), mar = c(4, 4, 4, 2))
   > plot(0, xlim = c(0, nrow(z)), ylim = c(0, 100), ylab = "Cumulative Percentage",
   +     xlab = "Time", axes = F, type = "n", xaxs = "i", yaxs = "i")
   > for (i in 3:1) polygon(c(0, xvals, xvals[length(xvals)], rep(rev(xvals -
   +     1), each = 2)), c(0, rep(0, length(xvals)), rep(z[, i], each = 2),
   +     z[1, i]), col = i + 1, border = FALSE)
   > abline(h = seq(5, 95, by = 5))
   > abline(v = 1:20)
   > axis(1)
   > axis(2, las = 1)
   > box()
   > par(new = T)
   > par(fig = c(0.8, 1, 0, 1), mar = c(4, 0, 4, 2))
   > plot(0, xlim = c(0, 1), ylim = c(0, 3), axes = F, xlab = "",
   +     ylab = "", type = "n", xaxs = "i", yaxs = "i")
   > labels <- c("System", "User", "Idle")
   > for (i in 1:3) {
   +     polygon(c(0, 0, 0.5, 0.5), c(i - 1, i, i, i - 1), col = i +
   +         1)
   +     text(0.6, i - 0.5, labels[i], srt = 90)
   + }
   ```

4. [hard (or at least long :)]

```
> par(mar = c(5, 8, 3, 8), las = 1)
> plot(0, xlim = c(0, 1), ylim = c(1, 13), ylab = "", xlab = "Proportion",
+     axes = F)
> mtext("Sex", side = 2, at = 12, cex = 2, adj = 1, line = 1)
> mtext("male", side = 2, at = 11, adj = 1, line = 1)
> mtext("Race", side = 2, at = 9, cex = 2, adj = 1, line = 1)
> mtext("black", side = 2, at = 8, adj = 1, line = 1)
> mtext("caucasian", side = 2, at = 7, adj = 1, line = 1)
> mtext("oriental", side = 2, at = 6, adj = 1, line = 1)
> mtext("other", side = 2, at = 5, adj = 1, line = 1)
> mtext("smoking", side = 2, at = 3, cex = 2, adj = 1, line = 1)
> abline(h = c(2, 5, 6, 7, 8, 11), lty = 2)
> ptsfun <- function(row, elt) {
+     points(elt[1], row, pch = 16, col = 1)
+     points(elt[1], row)
+     points(elt[2], row, pch = 16, col = 2)
+     points(elt[2], row)
+ }
> ptsfun(11, propns$sex$male)
> ptsfun(8, propns$race$black)
> ptsfun(7, propns$race$caucasian)
> ptsfun(6, propns$race$oriental)
> ptsfun(5, propns$race$other)
> ptsfun(2, propns$smoking)
> mtext("P = 0.453", side = 4, line = 1, adj = 0, at = 11)
> mtext("P = 0.189", side = 4, line = 1, adj = 0, at = 8)
> mtext("P = 0.743", side = 4, line = 1, adj = 0, at = 2)
> axis(1)
> box()
> par(new = T)
> par(mar = rep(0, 4))
> par(fig = c(0.85, 0.95, 0.1, 0.2))
> plot(0, xlim = c(0, 1), ylim = c(1, 4), ylab = "", xlab = "",
+     axes = F)
> points(0.33, 2, pch = 16, col = 2)
> points(0.33, 2)
> points(0.33, 3, pch = 16)
> text(0.66, 2, "B")
> text(0.66, 3, "A")
> box()
```