Biostat 651 Hw 1

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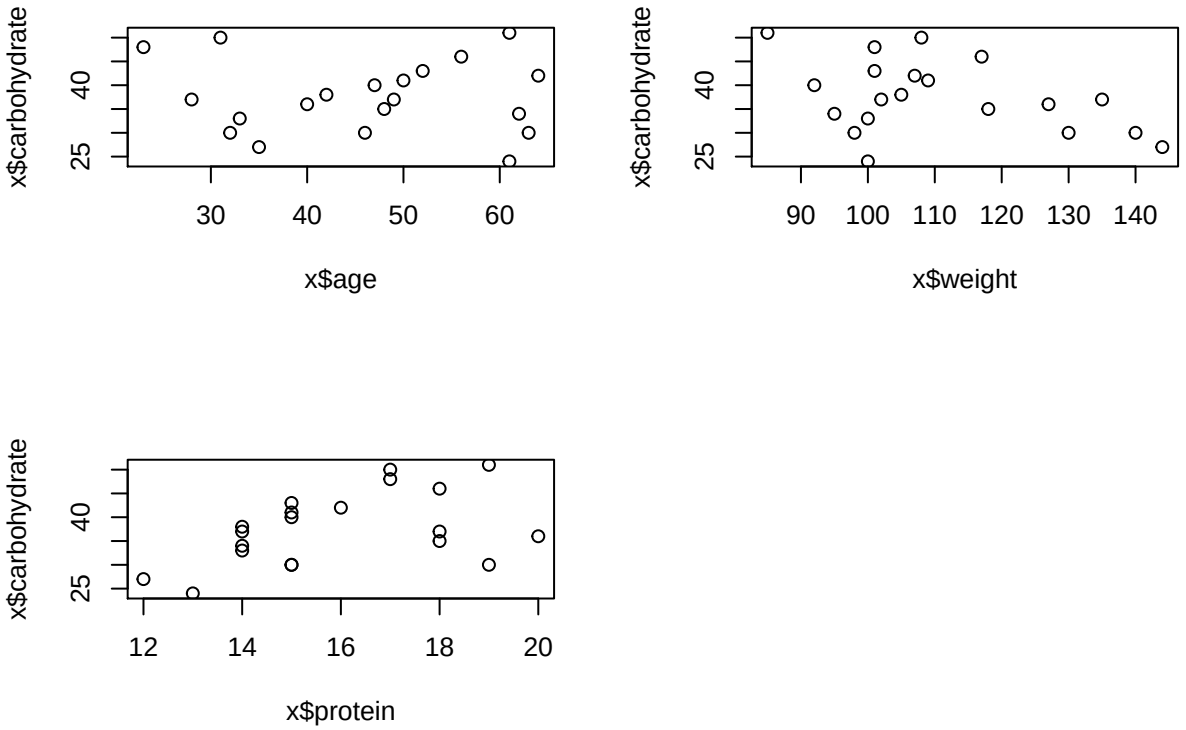
Problem 4(a)

```
require(readxl)
```

```
## Loading required package: readxl
```

```
x <- read_excel("dobson6.3.xls", skip = 2)
par(mfrow=c(2,2))
plot(x$age, x$carbohydrate)
plot(x$weight, x$carbohydrate)
plot(x$protein, x$carbohydrate)
```



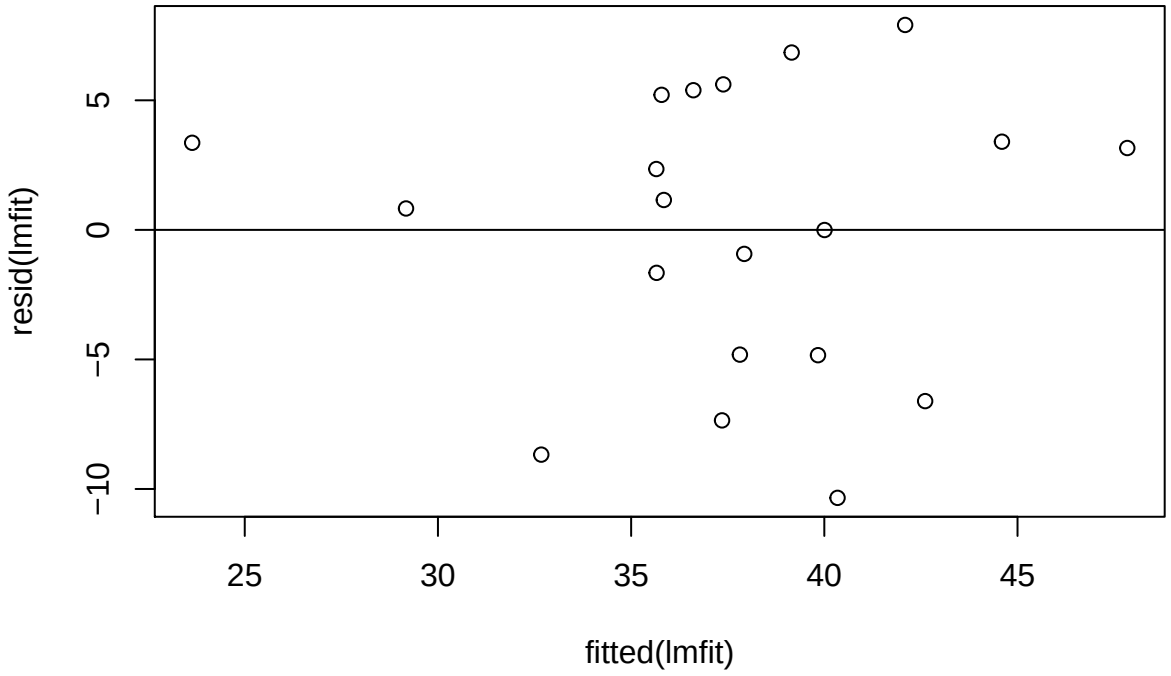
Problem 4(b)

```
lmfit <- lm(carbohydrate ~ age + weight + protein, data=x)
summary(lmfit)
```

```
##
## Call:
## lm(formula = carbohydrate ~ age + weight + protein, data = x)
##
```

```
## Residuals:
##      Min       1Q   Median       3Q      Max
## -10.3424  -4.8203   0.9897   3.8553   7.9087
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 36.96006   13.07128   2.828  0.01213 *
## age         -0.11368    0.10933  -1.040  0.31389
## weight      -0.22802    0.08329  -2.738  0.01460 *
## protein      1.95771    0.63489   3.084  0.00712 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 5.956 on 16 degrees of freedom
## Multiple R-squared:  0.4805, Adjusted R-squared:  0.3831
## F-statistic: 4.934 on 3 and 16 DF,  p-value: 0.01297
```

```
plot(fitted(lmfit), resid(lmfit))
abline(0,0)
```



Problem 4(c)

```
lmfit2 <- lm(carbohydrate ~ age + protein, data=x)
summary(lmfit2)
```

```
##
## Call:
## lm(formula = carbohydrate ~ age + protein, data = x)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
```

```
## -11.2692  -5.9968   0.9902   5.7952   9.5474
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 15.08848   12.16239   1.241   0.2316
## age         -0.09167    0.12818  -0.715   0.4842
## protein      1.68189    0.73693   2.282   0.0356 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.002 on 17 degrees of freedom
## Multiple R-squared:  0.2372, Adjusted R-squared:  0.1475
## F-statistic: 2.643 on 2 and 17 DF,  p-value: 0.1001
```