Exer 6.3 **[E/E101]**

Here is a simple model that relates foot width to length in children, fit to the data in `kidsfeet.csv`:

```
> lm( width ~ length, data=kids)
Coefficients:
(Intercept)    length
     2.8623    0.2479
```

1. Compute the predicted foot width from this model for a child with foot length 27cm.

   # to within ± 0.01 Exer 6.3-1

2. The sum of squares of the residuals from the model provides a simple indication of how far typical values are from the model. In this sense, the standard deviation of the residuals tells us how much uncertainty there is in the prediction. (Later on, we'll see that another term needs to be added to this uncertainty.) What is the sum of squares of the residuals?

   4.73 5.81 5.94 6.10 6.21 Exer 6.3-2

3. What is the sum of squares of the fitted values for the kids in `kidsfeet.csv`?

   42.5 286.3 3157.7 8492.0 15582.1 Exer 6.3-3

4. What is the sum of squares of the foot widths for the kids in `kidsfeet.csv`.

   3163.5 3167.2 3285.1 3314.8 3341.7 Exer 6.3-4

5. There is a simple relationship between the sum of squares of the response variable, the residuals, and the fitted values. Confirm this relationship using an R statement based on the values you computed for the three questions above. (Hint: If you can't confirm it, perhaps your answers to the questions above were wrong!) Enter that statement here: Enter Text Exer 6.3-5