**Exercise 7 – adding z-scores**

The goal of this assignment is to add z-scores for each participant to your data set. Your script should start from long format data (results.long.format.no.items.csv), and then add z-scores.

Now, I know that you could google this and find pre-written scripts that will do this for you. Please try to resist this urge. You can, of course, google smaller questions. But the point of this exercise is to try to write this script for yourself so that you build-up your R skills.

Remember, the first step of any script is to write down the steps you need to achieve in plain English. Then you can work through those steps, converting them to R code.

**HINT:** You should remove the practice items from the data set before calculating z-scores. The whole point of practice items is to help people learn to use the scale. We don’t want to start counting their responses until after the practice is over.

When you are finished, submit your script to me. I will run it using results.long.format.no.items.csv, and look to see if it calculates z-scores identical to those in results.long.format.csv.

Functions that may be helpful

The arithmetic operators are +, - , \*, and /

[] – bracket notation for indexing data sets

read.csv() – reads in csv files.

subset() – creates a subset from a data set based on a logical statement

length() – calculates the length of an object (what that means varies by data type)

nrow() – counts the number of rows in a matrix or data frame

order() – useful for re-ordering a dataset according to a column (you can google this)

aggregate() – a useful function for splitting a data set into smaller chunks, and performing the same calculation on each chunk

mean() – calculates the mean of set of numbers

sd() – calculate the standard deviation of a set of numbers

as.numeric() – treats non-numeric elements as numeric

rep() – repeats an element, or a sequence of elements, a certain number of times

as.integer() – treats a numeric element as an integer

unlist() – flattens a list into a vector

data.frame() – creates a data frame from separate elements (vectors, matrices)

write.csv() – writes a csv file