FISH 552 Homework 1

Open a new script in R and put the following information at the top using comments:

```
# Name: First Last
# Homework 1
```

Complete the tasks below and be sure to label each question with comments

```
#==Question 1a
R Code . . .

#==Question 1b
R Code . . .
```

When your script is complete, save it as `LastName_Homework1.R`, then clear your workspace (Workspace/Clear all) and run through your script again to make sure you don't have any 'object not found' errors. Then go to the course website to submit your R script.

Question 1

Create vectors of data with the following characteristics, using `rep()` and `seq()` when possible.

a) 100 regularly spaced values from -1 to 1. Call this vector `x`.

b) The function y = exp(x/2), evaluated for all the values in vector `x` created in (a). Call this vector `y`.

c) How many values in `y` created in (b) are above 1?

d) 5 entries each of "Small", "Medium", "Large", encoded as a factor. Call this vector `size`.

e) Take the results of (d) and append 2 entries of "Unknown". Call this vector `observedSize`.

Question 2

For this question we will use counts of salmon and other fish from dams in the Columbia River Basin. Download the file "`fishPassage.csv`" and save it in the same directory as your r code.

a) Read the data into R as an object named `fishPassage`.

b) Calculate the maximum and minimum number of wild steelhead to pass Bonneville Dam (`BON`) and specify in which year each occurred.

c) Calculate the total number of fish counted at Bonneville Dam (`BON`) in 2007.

d) Create a new data frame called `fishPassage1995BON` that contains only observations

from Bonneville Dam (`BON`) from 1995 onwards.

e) Create a matrix with 3 columns from the data `fishPassage1995BON` that contains counts of Coho adults, Coho jacks and the ratio of Coho jacks to adults. Name this matrix `cohoPassage`.

f) Compute the mean of each of the variables in `cohoPassage`.

g) Round the output in f) to two decimal places. You may need to search the help files.

h) Display all the observations associated with the largest Chinook adult count from the `fishPassage` data.