Excercise 2

Help: you can write a series of R commands into a file, and then execute them all in a row by doing

```r
> source("filename")
```

1a. Find in R a function that transposes a matrix. Read the documentation, and figure out what it does.

Create a 5 by 10 matrix of the numbers from 1 to 50. Then transpose it.

```r
> Create a matrix as above, where just the middle part (sub matrix) of 2nd to 4th row and 2nd to 4th column is transposed. Just the red part below:

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```r
```
Do a loop where in each iteration you sample as above sperm and eggs and create diploid individuals. Then in each iteration calculated the sum squared difference from the expected. Do 100 such iterations, and store the distance of each iteration in a vector.

> 

In how many of the iterations was the distance bigger than the one we observed?

> 

4. We want to test the Hardy-Weinberg equilibrium for alleles that sits on the X chromosome.

Assume that on the X we have two alleles A and B. (this site doesn’t axist on the Y) In males, the frequency of A is 90% and of B 10%. in females, the frequency of A is 20% and of B 80%.

Create the next generation of 100 males and 100 females. (Males only get one X from a female, and no X from a male, only a Y.)

> 

What is the new frequency in males? In females?

Iterate 10 times, and print the frequency in males and females each time.

>