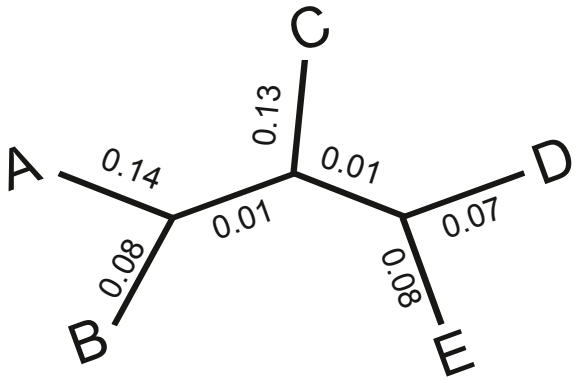
Homework 2: Distances

Before starting, work through the Python primer. The primer provides a nice template for doing most of the work for this homework assignment.

The numbers in the 1st column of the table below represent the number of nucleotide differences between each possible pair of 5 DNA sequences. The sequence length is1296 nucleotides.

Compute the JC69 evolutionary distances using the nucleotide differences provided in the first column. **Use the ss1.py script you created in the Python primer to do the calculation.** You will have to change the value of the variable **n**, and replace the values in the lists **rowname**, **path**, and **x** (and note there are 10 instead of 6 pairs). **Enter the JC69 distances in the 2nd column of the table** below.



Calculate the length of each path through the tree on the left and **enter these path lengths in the 3rd column** of the table below.

Compute the squares for this tree using power k=2 (using ss1.py) and **enter these numbers in the 4th column**.

The first row has been calculated for you. Use that to ensure that your script is working correctly.

	Differences	JC Distance	Tree Paths	Squares
A vs. B	241	0.21371	0.22	0.00087
A vs. C	292			
A vs. D	262			
A vs. E	260			
B vs. C	248			
B vs. D	187			
B vs. E	205			
C vs. D	231			
C vs. E	242			
D vs. E	180			
			SS =	