a) The time it takes to calculate increases after every incrementation of the for loop. The more the for loop increments the rate of time taken increments quickly as well.
b) The tail recursive function is calculated much faster than the exponential function. The time it takes to calculate increases much slower than the other function. Even with incrementations of 5 of the for loop, the rate of time taken increments at a slower pace than the other function.
c) The time complexity of the exponential function is $O(4^n)$ because for every call of this function, the same function is called four more times in order to calculate each of the four previous numbers. It continues to expand in fours each time the function is called until the base case is reached.

   The time complexity of the tail recursive function is O(n) because the function is only called once inside and saves the 4 previous numbers during the calculation instead of having to calculate each of the four individually.
d) There is an expansion of four function calls every time until it reaches the base case making it look like a huge tree with four branches which those branches have another four until it reaches the base case. This means that it calculates each of the four previous number individually.