Name: _____ **ID:** _____

A new kind of virus named X was discovered. Now, the scientist wants to find out which family of viruses it belongs to. They are confused between Hepatitis viruses and Herpesviridae. They sent you three pieces of DNA sequences and asked you to figure out by researching their subsequences.

A piece of DNA sequence of X = **ACTCTGA**

A piece of DNA sequence of Hepatitis virus = **ACGTGGT**

A piece of DNA sequence of Herpesviridae = **CTTACGA**

1. **Find** out the Longest Common Distance between the DNA sequences of X and Hepatitis virus. **[5]**

2. By using previous answers, **which** have the higher similarities with X between Hepatitis viruses and Herpesviridae. **What** is the subsequence? **[7]**

3. **Fill** in the blanks: **[3]**

   a. _____ problems can be solved in polynomial time.
   b. NP problems can be verified in _____ time.
   c. NP problems can be solved in polynomial time in _____ computers.

Best of luck for your finals! :D