1. Imagine a Network with 200ms RTT between client and a web-server. The client is trying to load a webpage that contains: index.html and 6 pictures. Assume each object can fit in one data packet. Each of the seven objects fits within a packet. The initial congestion window is 10.

- How long will it take the client to load the page under HTTP1.0?
  Solution: it will take (7)*(2*RTT). Recall, in HTTP1.0, each object is sent on a new TCP connection. so there’s a RTT overhead for handshake and a RTT for HTTP request and response. If you decide to wait for connection teardown. Then, 7*(3*RTT)

- How long will it take the client to load the page under HTTP1.1 with Keep-Alive and 3 parallel TCP connections?
  Solution: With keep alive but no concurrent connections, it will take (1+3)*RTT. with 3 connections you can send/get HTTP in parallel. Unfortunately, one connection will get 3 objects while the other connections will each get 2 objects.

- How long will it take the client to load the page under HTTP1.1 with Keep-Alive and Pipelined Requests on one TCP connection?
  Solution: With keep alive but no concurrent connections, it will take 1+1 RTT. The first RTT for TCP handshake, since the Window is 10. All 6 ‘Get Requests’ get sent at once. All 6 ”Responses” will also get sent at once.

2. You are starting up your own website, with the following name www.cs356.gov. You have setup your own name server to resolve queries for cs356.gov.
which Name servers do you need to change to ensure that your website is reachable? what type of DNS record is added/changed?
Solution: The NS records at the .gov Top level domain name server will be added/changed. The cs356.gov name server will also be modified and the following records added/changed A, AAAA, and PTR records.

you decide to change the IP address of the web-server hosting www.cs356.gov. Which name server needs to be changed? what type of DNS record is changed?