Homework for Chapter 7

1. Which DNS record verifies the signature of the DNS records for an authoritative name server?
2. Can a machine with a single DNS name have multiple IP addresses? How could this occur?
3. Can a computer have two DNS names that fall in different top-level domains? If so, give a plausible example. If not, explain why not?
4. A 100 byte ASCII string is encoded using base64. How long is the resulting string?
5. Suppose that you want to send an MP3 file to a friend, but your friend's ISP limits the size of each incoming message to 1 MB and the MP3 file is 4 MB. Is there a way to handle this situation by using RFC 5322 and MIME?
6. Imagine that someone in the math department at Stanford has just written a new document including a proof that he wants to distribute by FTP for his colleagues to review. He puts the program in the FTP directory ftp/pub/forReview/newProof.pdf. What is the URL for this program likely to be?
7. For each of the following applications, tell whether it would be (1) possible and (2) better to use a PHP script or JavaScript, and why:
    a. Displaying a calendar for any requested month since September
    b. Displaying the schedule of flights from Amsterdam to New York.
    c. Graphing a polynomial from user-supplied coefficients.
8. Does it make sense for a single ISP to function as a CDN? If so, how would that work? If not, what is wrong with the idea?
9. Under what conditions is using a CDN a bad idea?
10. One of the advantages of peer-to-peer systems is that there is often no central point of control, making these systems resilient to failures. Explain why BitTorrent is not fully decentralized.