# WEEK 9 Task 9.2C

1. **20.2**
   For a password that is 15 characters long, where each character can be one of the 52 upper- and lower-case letters, 10 digits, or 32 punctuation symbols, the total number of possible passwords is:
   $94^{15}$
   Converting this to seconds for readability
   3.95 times $10^{20}$ seconds.

2. **20.3**
   Given the data in Problem 20.2, compute the size of the hard disk needed to house a rainbow table if each hash is 512 bits in length.

   S ≈ 3.71196 x 1018 TB

3. **20.11**
   128 bits

4. **20.12**
   160 bits

5. **20.13**
   256 bits

6. **20.14**
   256 bits

7. **20.15**
   224 bits

8. **20.16**
   256 bits

9. **20.17**
   128 bits

10. **20.18**
    256 bits