

1. Done, Video included and .c file uploaded
2. A pointer variable is the address of a variable type whereas a normal variable can hold a value.
3. Interpreted code compiles and makes code executable as it runs. Compiled code uses a compiler to make the whole program into an executable, so it runs faster.
4. Binary, Base10
 - a. 00011110, 30, Most sig bit: 0
 - b. 00110010, 50, Most sig bit: 0
 - c. 11111110, 254, Most sig bit: 1
 - d. 11000100, 196, Most sig bit: 1

6. 524288 bits

7.
 - a. 107
 - b. 053
 - c. 061
 - d. 063

8. unsigned char: 0 to 255

short: -32, 768 to 32, 767

double: +- 2^{2048} (depending on machine)

10 . Unsigned ints can represent numbers from 0 to $2^{32}-1$ while signed ints can go from -2^{31} to $2^{31}-1$ but they take up the same amount of space

- 11
 - a. Ints can represent more numbers, but chars may be faster if the numbers stay small
 - b. Floats may be faster, but doubles will have more precision
 - c. chars will be faster but may overflow, floats will be slower but able to represent higher numbers however they may not be able to represent integers exactly.

16. an unsigned long int will be the most similar memory wise

17. a) unknown for all

b) 0xB0..0xB3 (the unsigned int i) = Unknown, 0xB4..0xB7 (the unsigned int j)= Unknown, 0xB8 (the pointer kp) = 0xB0, and 0xB9 (the pointer np)= Unknown

c) 0xB0..0xB3 (the unsigned int i) = Unknown, 0xB4..0xB7 (the unsigned int j)= Unknown, 0xB8 (the pointer kp) = 0xB0, and 0xB9 (the pointer np)= Unknown

d) 0xB0..0xB3 (the unsigned int i) = 0xAE, 0xB4..0xB7 (the unsigned int j)= Unknown, 0xB8 (the pointer kp) = 0xB0, and 0xB9 (the pointer np)= Unknown

e) 0xB0..0xB3 (the unsigned int i) = 0xAE, 0xB4..0xB7 (the unsigned int j)= Unknown, 0xB8 (the pointer kp) = 0xB0, and 0xB9 (the pointer np)= 0xB0

f) 0xB0..0xB3 (the unsigned int i) = 0x12, 0xB4..0xB7 (the unsigned int j)= Unknown, 0xB8 (the pointer kp) = 0xB0, and 0xB9 (the pointer np)= 0xB0

g) 0xB0..0xB3 (the unsigned int i) = 0x12, 0xB4..0xB7 (the unsigned int j)= 0x12, 0xB8 (the pointer kp) = 0xB0, and 0xB9 (the pointer np)= 0xB0