Unit 1 – Worksheet 04 Name: _____

Memory and Binary Numbers

One common way to document what type of number is being communicated is to use a subscript.

Binary Number Examples	00111011_{bin}	10110101_{bin}
Decimal Number Examples	1672_{dec}	1000011_{dec}

Note: Binary numbers can only use 0 and 1. Decimal numbers are the normal numbers that we tend to deal with in everyday life (base 10 numbers), so the second example is actually the number 1,000,011. Notice that the subscripts are communicating what type of number is being presented.

1. The following is binary data. Find each integer. **Show work!**

   01101110_{bin} =

   10001101_{bin} =

   11110010_{bin} =

2. Convert the following integers to binary code (be sure to give 8, 16, 24, or 32 digits). **Show work!**

   28_{dec} 205_{dec} 1500_{dec}

   _____bin _____bin _____bin

3. If a computer allocates 5 bits of memory, what is the largest unsigned integer (no memory for the sign) it can hold?

4. If a computer allocates 9 bits of memory, what is the largest signed integer (bit used for the sign) it can hold?