1. Using powers of ten (for example, 1 kilobyte = 1000 bytes),
   (a) [2.5 points] approximately how many bytes are in 4.8 gigabytes?       
   (b) [2.5 points] approximately how many bytes are in 4.8 gigabits?       

2. Identifiers
   (a) [5 points] Give three examples of keywords in Java. Explain why a variable can be named Void but not void.
   (b) [5 points] Given examples of both a valid and invalid identifier containing a number (digit or several digits).
3. What is the range (most negative value it can represent to the most positive value it can represent) of each of the following data type?

   (a) [2 points] int ________________
   (b) [2 points] short _______________
   (c) [2 points] byte ________________
   (d) [2 points] long ________________

   [2 points] What type is the smallest (in terms of numbers of bits) that can hold the integer 32789?

4. Explain why each of the following statements or code snippets (several statements) will or will not compile. (You may write code and use the Java compiler for this question.)

   (a) [5 points]

   ```java
   byte a = 5;
   byte b = 1034;
   byte c = a + b;
   ```

   (b) [5 points]

   ```java
   long pageViews = 2147483640389;
   ```

   (c) [5 points]

   ```java
   float years = 4.;
   ```
5. [5 points] Give a brief description of what each of the following terminal commands do. Assume they’re executed in sequence. (As an example, `ls -a` could be described as “Lists all files in the current directory, including hidden files.”)

```
  cd

  cd Code/

  java Numerics
```

6. [10 points] Letters of the alphabet, along with numbers, punctuation, and other symbols, are stored on the computer as numbers using **ASCII encoding**. For example, the upper-case letter `A` is encoded as the number 65, and the lower-case letter `a` is encoded as the number 97. You can find a full ASCII table at [http://web.cs.mun.ca/~michael/c/ascii-table.html](http://web.cs.mun.ca/~michael/c/ascii-table.html). Please note that the encoding number is to the right of the symbol being encoded.

   Using proper initial capitalization, convert your last name to ASCII numbers, putting spaces between the values (for readability). For example, Garvey is encoded as 71 97 114 118 101 121.

7. [5 points] What are overflow and underflow?