Quiz 2  
CSE 30  
Winter 2007

#1. a) Write the SPARC assembly instructions to define the following global variables in the data segment:
   
   ```
   char CSI[] = "Las Vegas";
   double delight = 4.11;
   ```

#2. What is the value (in hex) of %o1 after each set of instructions:

   a) set 0xDEADBEEF, %o1  
      sra %o1, 16, %o1

      Value in %o1 at this point is 0x______________________________

   b) set 0xDEADBEEF, %o1  
      set 0x6B6B6B6B, %o2  
      xor %o1, %o2, %o1

      Value in %o1 at this point is 0x______________________________

   c) set 0xDEADBEEF, %o1  
      set 0x6B6B6B6B, %o2  
      and %o1, %o2, %o1

      Value in %o1 at this point is 0x______________________________

#3. Assume you run gdb on pa1.
State how to set a breakpoint at the entry point in displayDiamond():

Assume you correctly set this breakpoint and performed a run with correct command line arguments.
State how to print the value of the 3rd argument passed to displayDiamond():

(over)
#4. Write the equivalent **unoptimized** SPARC assembly language instructions to perform the following C code fragment. **Use the loop construct specified in class/Notes.**

```c
for ( a = 4; a < 29; ++a )
{
    x = 5678 + a;
}
```

---

#5. Write the equivalent **unoptimized** SPARC assembly language instructions to perform the following C code fragment.

```c
x = x % 8309;
```

---

Now optimize your answer to eliminate any delay slots:

**Optimized version of above SPARC assembly**