Signature _____ **Name**_____

cs30x____

Student ID _____ **Score:**

Quiz 2
CSE 30
Winter 2008

#1. a) Write the SPARC assembly instructions to define the following **global** variables in the **data** segment:

```
char Terminator[] = "Sarah Conner";
double DSC = 101.5;
```

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

a)
```
set  0xDEADBEEF, %o1
sra  %o1, 12, %o1
```

Value in %o1 at this point is **0x**_____

b)
```
set  0xDEADBEEF, %o1
set  0x1A2A3A4A, %o2
xor  %o1, %o2, %o1
```

Value in %o1 at this point is **0x**_____

c)
```
set  0xDEADBEEF, %o1
set  0x1A2A3A4A, %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 2nd argument passed to displayDiamond() in gdb:

(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 = 9212; a >= 154; --a )
{
   x = a - 445;
}
```

SPARC assembly

```
        /* x is mapped to %l2 */
        /* a is mapped to %l4 */
```

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

C

```
x = x % 9212;
```

SPARC assembly

```
        /* x is mapped to %l0 */
```

5b. Now optimize your answer to eliminate any delay slots:

Optimized version of above SPARC assembly