CS-231 <u>Practice</u> Exam 2 Spring 99

Score:	1.	(max 15)	5.	(max 12)
	2.	(max 10)	6.	(max 10)
	3.	(max 5)	7.	(max 5)
	4.	(max 18)	8.	(max 25)
	Total:		(max 100)	

1. (5 pts each, 15 pts total) Using Java syntax, write a boolean expression that evaluates to true when

   (a) The character c is an uppercase letter.

   (b) X isn't bigger than either Y or Z.

   (c) The number W is between -10 and 10.

2. (5 pts each, 10 pts total) Assume A, B and C are boolean variables. Simplify the following boolean expressions:

   (a) `(A && B && A) || B`

   (b) `!( !A && !B ) || !!A`

3. (5 pts) Write a multi-way if-else statement that computes a person's car insurance rate. If the person is 25 years old or less and has had no accidents then their rate is $1000 otherwise they pay $1500. If the person is older than 25 but less than 59 they pay only $700. If they are 59 or older they pay $800. Make sure your syntax and indentation is correct.

4. (6 pts each, 18 pts total) Write <u>for-loops</u> for

  (a) Printing the even numbers in the range of 50 to 100, *backwards*.

  (b) Printing the letters of the alphabet (lowercase).

  (c) Summing the first 20 elements of a 1-D integer array called numbers.

5. (6 pts each, 12 pts total) Write <u>while-loops</u> for

    (a) Printing the even numbers in the range of 1 to 100, *backwards*.

    (b) Summing the numbers input by the user, stopping when the sum first exceeds 100.

6. (10 pts) Write the code to declare and create a 3x4 array of Complex objects initialized to zero.

7. (5 pts) What is the output of the following code:

```
int j, k = 0;
for (int i = 0; i < 4; i++)
{
    k++;
    j = 0;
    while ( j < 3)
    {
        k++;
        j++;
    }
}
System.out.println("k = " + k + " j = " + j);
```

8. (5 pts each, 25 pts total) Draw a picture of the memory after the following instructions. Include any references (arrows) even if they don't point to anything.

(a) `int num [];`

(b) `String names[] = {"Frank", "Sally", "Eric"};`

(c) `int [] age = new int[3];`
    `age[1] = 6;`

(d) `int area [][] = new int[2][3];`

(e) `Complex c[] = new Complex[2];`