

Your Last Name: _____

Your SS Number: _____

1. Let: A be your age, Y the number of years you have been in college, and D the number of dollars you have in the bank. Construct Boolean expressions in Java that will be *true* when the following conditions are met:

(a) you are a millionaire but you are not a senior

(b) you are either too young to vote or you are not a freshman

(c) you are either younger than 20 and broke, or older than 90 and have more than \$100,000

(d) you are 16 years old and your number of years in college is greater than the number of dollars you have in the bank

2. What are the values of **a** and **b** at the end of the following bit of code? Explain!

```
int i = 3, j = 2;
double a, b, c = 3;
a = 1 + i/j + j/i;
b = 1 + c/j + j/c;
```

3. What output is produced by this fragment of code?

```
for (int i = 4; i >= 0; i = i-1) System.out.println("i equals " + i);
```

4. Explain in just a few words

- (a) what is the difference between a *for* loop and a *method* in Java
- (b) what makes the *main* method in a Java program different from other methods
- (c) what does the Java interpreter do
- (d) what does the Java compiler do?
- (e) what is meant by a string
- (f) what is meant by an abstract data type in Java
- (g) what is meant by a class variable in Java

5. Consider a Java class consisting of a main method with the statement $y = f(x, n)$. The method f is defined just once beginning with the line `double f(double x, int y)`. Indicate whether each of the following is true or false:

- (a) the main method must call f with variables having the names of x and y
- (b) the method f may change and return new values for x and n
- (c) the method f returns a value for $f(y, n)$
- (d) the method f returns an int
- (e) the method f should have only one argument