

Problem 1

Assume that the following variable declarations have already been executed:

```
int f = 15;  
int g = 2;  
double h = 2.0;  
double i = 2;  
double j = 10.0;
```

Given the statements above, determine the value of each of the following expressions. *Make sure that your answers clearly indicate the type of each value. In particular, floating-point values should have a decimal and strings should be surrounded by double quotes.*

- a. $f + g$
- b. $f + "g"$
- c. $f + h$
- d. f / g
- e. f / h
- f. f / i
- g. $(\text{int})j / f * f$
- h. $(\text{int})(j / f) * f$
- i. $"1" + 1 + 2$
- j. $1 + 1 + "2"$

Problem 2

Consider the following code fragment:

```
Scanner scan = new Scanner(System.in);
System.out.print("Enter three numbers: ");
int a = scan.nextInt();
int b = scan.nextInt();
int c = scan.nextInt();

if (a <= b) {
    if (b > c || c < 4) {
        System.out.println("diamond");
    } else {
        System.out.println("ruby");
    }
    System.out.println("pearl");
} else if (b >= c) {
    if (!(a > b)) {
        System.out.println("copper");
    } else if (b == c && b < 5) {
        System.out.println("bronze");
    }
    System.out.println("silver");
    if (a < c) {
        System.out.println("gold");
    }
} else {
    System.out.println("penny");
    if (a == b) {
        System.out.println("dime");
    } else {
        System.out.println("nickel");
    }
}
System.out.println("done");
```

1. state the output that would result from each of the following sets of inputs:
 - 3 3 3
 - 3 4 5
 - 3 5 2
 - 5 4 3
 - 5 4 7
 - 4 4 3
2. At least one of the println statements in the above code fragment will not be executed for *any* set of inputs. Identify the statement(s) and explain why it/they will never be executed.