1. (2 pts) In the JOptionPane class, we use the method showInputDialog to ask for input from the user, and the method showMessageDialog to display information to the user.

2. (2 pts) A set of statements not interpretable by a machine but readable by a human that contains a plan is called pseudocode, and the plan itself is called an algorithm.

3. (2 pts) Given the following for loop, what is the equivalent while loop? Will the loop ever end?

   ```java
   for (int counter=1;counter<5;counter++)
       counter--;  
   int counter=1;
   while (counter <= 5) {
       counter--;  
       counter++;  
   }
   ```

   No, the loop won't end. The control variable counter is first decreased by 1, then increased by 1. So the variable doesn't change, so the condition is never false.

4. (2 pts) What does the following code print?

   ```java
   for (int counter=0;counter<20;counter++)
   { 
       if (counter % 2 == 0 && counter % 3 == 0 && counter > 0)
           continue;  
       if (counter % 4 == 0 && counter % 2 != 0)
           break;  
       System.out.println(counter);  
   }
   ```

   The integers from 0 through 19 are printed except for multiples of 6.

5. (2 pts) There are two problems in the following method declaration. What are they?

   ```java
   public static int half(double a) {
       if (a > 0)
           return(a/2);  
   }
   ```

   The return type of the method is int, but we are trying to return a double. Also there is no return statement if a is less than or equal to 0.