Northeastern Illinois University	Name:
CS 200: Programming I	
Professor Yehuda Gutstein	NEIU-ID:

Quiz #4 SOLUTIONS

Instructions:

- 1. Do not turn this page until told to do so.
- 2. This quiz is *closed book* and *closed notes*.
- 3. Write your name on every page.
- 4. You must give your answer to a question on the *same sheet of paper that the problem appears on*. If you run out of space on the front of the page, you may continue to the back of that page only. If you put your answer on a different page, *you will not receive credit for that problem!*
- 5. You do not need to do any error checking of input values, *unless the problem specifically asks you to do so!*
- 6. If you are caught looking at other papers or communicating with other students in any way, you will receive an **F** for this quiz.

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Question 1 (20 pts) Tracing.

What is the output of the following Java program?

```
public class Q4Tracing{
   public static void main(String[] args) {
     int a = 2, b = 4, c = 5, d = 100;
     System.out.println(a + " " + b);
     System.out.println(c + " " + d);
     a = spaz(b, c);
     d = quip(a, c);
     System.out.println(a + " " + d );
 }
 public static int spaz(int x, int y) {
     x = y \% 2;
    y = x + 3;
     System.out.print(x + " * " + y + " = ");
     System.out.println(x * y);
     return x;
  }
 public static int quip(int w, int z) {
     int x;
     x = z - w * 7;
     W--;
     System.out.print(z + " + " + w + " = ");
     System.out.println(z + w);
     return x;
} // end of class
```

Output

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Question 2 (20 pts) Coding.

- Write the void method public static void gizmos (int quantity) which takes a positive integer quantity.
- The method should determine whether a quantity of gizmos greater than 12 is even or odd.
- Only if it is odd should you determine how many dozen (12) are contained within the quantity, and how many will be left over.
- If it is even, you should determine if it is valid (greater than 12) or invalid (less than 12).
- Your program should work for any input entered. Four sample runs have been provided.
- Note: The method header has already been provided. Just write the content of the method.
- Sample Output:

```
The quantity is 8.

Invalid: too few gizmos

The quantity is 49.

Valid: 4 dozen and 1 spare gizmo

The quantity is 32.

Valid: 9 dozen and 1 spare gizmo

The quantity is 15.

Valid: 1 dozen and 3 spare gizmos
```

```
public static void gizmos(int quantity){
      System.out.println("The quantity is " + quantity);
      System.out.println();
      if(quantity % 2 == 0){
            if(quantity >= 12)
                   System.out.println("Valid: even quantity");
            else
                   System.out.println("Invalid: too few gizmos");
      else{
            if(quantity > 0){
                   int dozen = quantity / 12;
                   int rem = quantity % 12;
                   String gizmoSt = "gizmo";
                   if(rem > 1)
                         gizmoSt = "gizmos";
                   System.out.println("Valid: " + dozen
                         + " dozen and " + rem + " spare "
                         + gizmoSt);
            }
      }
}
```