CSE2 Exam 2 Fall 2014 Name:_____

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Read the entire exam **CAREFULLY** and answer the questions that seem easiest first. Write answers in the box when provided. You have 50 minutes.

- **Put your name on each page, or risk having an incompletely graded exam.**
- **Raise your hand to notify a proctor if you have a question.**
- **No talking, no tapping, or other noise. No cell phones, calculators or other electronics.**
- **Do not leave early. All exams will be collected after time expires.**
- **Do not write in boxes labeled "total score".**

This page: grader use only.

Question 1:	/20
Question 2:	/20
Question 3:	/20
Question 4:	/20
Question 5:	/20

Exam Total: ☐

Page 1—Exam pages will be separated for grading. Be sure to put your name and email address on every page to ensure that you prevent errors. Do not write on page backs.

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1) Given the screen output provided on the left, construct loop(s) or nested loops that generate exactly that output, including the spacing. You need not define a class and a main method; just write loop(s) and necessary variables. **No credit will be granted for writing a series of println() statements. Numbers shift by one character, and there are no spaces to the left of "1". 20 points**.

```
        9
       8
      7
     6
    5
   4
  3
 2
1
```

Answer:

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2) What is written to STDOUT in the following code, assuming it is wrapped in a class definition? Write the output for each println statement associated with a comment in the code underneath the comment in the answer box **20 points**.

```
public static int perplex(int x,int y){
     x+=3;
     y+=x;
     if(y>x+2){ return x; }
     return x+y;
}

public static void main( String args[] ){
     int x=-4,z=7;
     int y=perplex(z,x);
     System.out.println(y+" "+x);        //(a)
     x=10;
     y=perplex(x,x);
     System.out.println(y+ " " + x);     //(b)
     System.out.println( perplex(5, 1+perplex(6,7)));  //(c)
}
```

Answer:

//a:

//b:

//c:

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3) For the program specified below, write the main method on this page. Write the method it calls, `sum()`, on the next page. Assume that they are members of the same class. Assume also that java.util.Scanner is imported and that the user always enters ints. **20 points.**

Prompt the user to enter an int, then prompt for a second, larger int. Repeat the prompt (in a loop) **if a larger int is not entered**. The program should then display the sum of all ints between the first and second int, **including the two ints entered**. For example, if the user enters 5 and 9, the program should display 35 (which is equal to 5+6+7+8+9). For this program, the main method should declare, construct, and use an instance of the **Scanner** class. The sum must be computed by the method `sum()`, and must take the two ints as its arguments**. Declare both methods properly.**

```
Sample Output:
Enter an int: 5
Enter an int greater than 5: 4
Sorry, you entered 4 <= 5; try again
Enter an int greater than 5: 5
Sorry, you entered 5 <= 5; try again
Enter an int greater than 5: 8
5 + ... + 8 = 26
```

```
//Write the main method below:
```

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```
//Write sum() below:
```

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4) Rewrite the for loop below, first as a while loop and second as a do-while loop. **Each of the loops you write must behave exactly the same was as the original for loop (e.g. aMethod is called with the same inputs, in the same order).** Assume that a, b, and c have been previously declared as ints and have been assigned some values. Assume `aMethod()` has been declared. **20 points**.

```
for(int k=a; k<b; k+=c){
      aMethod(k);
}
```

a) Version using while loop

b) Version using do-while loop

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5) Suppose the following overloaded methods are defined as follows:

```
public static String x(int a, String b, int c){
   return a+c+b;
}

public static int  x(double a, int b, int c){
   return (int)(a+b*c);
}
```

For each call below, state what is returned by the statement if the code compiles. If it has a compiler error, write "CE". **5 points each, 20 points total.**

a) `x(2," + one");`

a.

b) `x(0.0,3,0);`

b.

c) `x(1.0, 2, x(1.0,2,3));`

c.

d) `x(1,"two",3);`

d.