1. (3 pts each, 18 pts total) What is the value of result after each of the following statements assuming that:

   int result = 1;
   int a = 2;
   int b = 7;
   int c = 3;

   a. result++;  
      _________

   b. result = a / b;  
      _________

   c. result = b % c;  
      _________

   d. result = a % b;  
      _________

   e. result = a + b * c;  
      _________

   f. result = Math.min( b+c , c*c );  
      _________

2. (2 pts each, 8 pts total) What is the value (true or false) of each of the following assuming

   char letter = 'D';

   a.  (letter != 'C' || letter != 'D')  
       True or False

   b.  ! (letter == 'C' || letter == 'D')  
       True or False

   c.  ! (letter == 'C' && letter == 'D')  
       True or False

   d.  (letter != 'C' || letter == 'D')  
       True or False
3. (3 pts each, 18 pts total) What is the value of each of the following expressions? (true, false or undefined)

```java
boolean fast = true;
boolean loud = false;
boolean big = true;
boolean red = false;
double speed = 100;
```

Circle correct answer

a. fast && !red
   true   false   undefined

b. loud && red || fast
   true   false   undefined

c. speed >= 70
   true   false   undefined

d. 50 < speed < 100
   true   false   undefined

e. speed >= 1 && <= 10
   true   false   undefined

f. red || speed != 100
   true   false   undefined

4. (3 pts) What is the output of the following code:

```java
int x = 10;
int y = 20;
int z = 30;

z = x;
x = y;
y = z;
System.out.println(x + " " + y + " " + z);
```

a. 10 20 30
b. 30 10 10
c. 20 10 10

d. 20 30 10

Answer (a, b, c, or d): __________
5. (6 pts) What is the output of the following code:

```java
String dessert = "chocolate cream pie";
char myChar = dessert.charAt(6);
String myString = dessert.substring(2,5);
System.out.print("myChar = " + myChar);
System.out.println("   myString = " + myString);
```

6. (10 pts) The following program fragment counts up occurrences of the letters 'W' and 'U' and of all other letters (as a "miscellaneous" category) in a line of user input. Re-write it to use if-else statements instead of a switch statement (assume that a char variable called letter has been defined already.)

```java
int wcount = 0;
int ucount = 0;
int mcount = 0;
switch(letter)
{
    case 'W':  wcount++; break;
    case 'U':  ucount++; break;
    default:   mcount++;
}
```

Answer (code):
7. (3 pts each, 9 pts total) Given the following code:

```java
int score = in.nextInt(); // user enters score
if (score < 80)
{
    if (score > 90)
    {
        System.out.println("great");
    }
    else if (score < 70)
    {
        System.out.println("not great");
    }
}
else
{
    if (score < 90)
    {
        System.out.println("I'm happy");
    }
    else if (score < 70)
    {
        System.out.println("how depressing");
    }
}
```

What is the output if (answer for each of the following, separately):

a. score = 85  
   output: ________________

b. score = 100
   output: ________________

c. score = 65  
   output: ________________

8. (6 pts) What is the output of the following loop?

```java
for (int i = 3; i < 6; i++)
{
    System.out.println("i = " + i);
}
```

Answer: 
9. (4 pts) Consider the following for loop template—we’ve used letters for the three parts of the header and the body so that we can refer to them more easily:

```
... for ( A ; B ; C ) {

    D

} ...
```

The first time we enter this loop (from the code directly above it), in what order will the four lettered parts of the loop be evaluated?

1. A B C D
2. A C B D
3. B C A D
4. A B D C

Answer (1, 2, 3, or 4): _________

10. (12 pts) Write a for-loop that prints 7 down to 1 (i.e. 7 6 5 4 3 2 1).

Code:

```
for ( int x = 7; x >= 1; x-- ) {
    cout << x << " ";
}
```

11. (6 pts) What is the value of sum after the following while-loop? A variable trace may be helpful.

```c
int x = 2;
int sum = 0;
while ( x < 8 )
{
    sum = sum + x;
    x = x + 2;
}
```

Answer: sum = __________