

## Chapter 4: Control Statements Part I

1. What is output by the following?
  - a) `count = 0;`  
`if (count < 4)`  
`count = count + 1;`  
`System.out.println(count);`
  - b) `count = 0;`  
`while (count < 4)`  
`count = count + 1;`  
`System.out.println(count);`
  - c) `count = 0;`  
`while (count < 4) {`  
`count = count + 1;`  
`System.out.println(count); }`
  - d) `count = 1;`  
`while (count <= 4) {`  
`count=count+1;`  
`System.out.println(count); }`
  - e) `count = 1;`  
`while (count <= 4)`  
`count = count + 1;`  
`System.out.println(count);`
  - f) `count = 1;`  
`while (count >= 4)`  
`count = count + 1;`  
`System.out.println(count);`
2. Be able to write Java statements to output the integers from 1 to n (where n has already been input by the user) using each of the following types of loops:
  - a. **for**
  - b. **while**
  - c. **do/while**
3. What is output by the following?
  - a) `for (i=1; i <=4; i++) System.out.println( i );`
  - b) `for (i=1; i < 4; i++) System.out.println( i );`
  - c) `for (i=1; i >=4; i++) System.out.println( i );`
  - d) `for (i=1; i <=4; i++) ; System.out.println( i );`
  - e) `for (i=4; i >=1; i--) System.out.println( i );`
  - f) `for (i=1; i < 5; i++) System.out.println( i );`
  - g) `/* Assume that x=2 and y=10 */`  
`for (j=x; j <= 4*x*y; j += y/x)`  
`System.out.println( j );`
  - h) `for (i=1; i<=4; i++) System.out.println( "LC" );`
  - i) `for (counter=1; counter<=10; counter++) {`  
`counter=20;`  
`System.out.println( counter );}`
  - j) `for (i=7; i<=77; i+=7)`  
`System.out.println( i );`
  - k) `for (n=1, product=1; n<=5; n++)`  
`product=product*n;`  
`System.out.println(product);`
4. What is output below?
  - a) `c=5;`  
`System.out.println( c++);`  
`System.out.println( c);`
  - b) `c = 5;`  
`System.out.println( ++c);`  
`System.out.println( c);`

5. Write a statement to draw a line from point (x1,y1) to point (x2,y2);
6. Write a switch statement so that if the grade is "A", it outputs "Excellent", if the grade is "B", it outputs "Good", if the grade is "C", it outputs "Average", if the grade is "D", it outputs "Poor", if the grade is "F", it outputs "Failing", and otherwise it outputs "Invalid grade."

### Chapter 5: Control Statements Part II

1. Write a statement to output the value of 2 to the 100<sup>th</sup> power.
2. Write a statement to output the exact value of Pi.
3. Write a problem that contains a method called square that takes an integer and returns its square. The main program should input the integer, call square, and output the value.
4. Write a statement to generate a random integer in the range 1 to 6, assuming that the Random object is called r.

### Chapter 6: Methods: A Deeper Look (continued)

1. What is output below?

// Fig. 6.11: Scope.java

```
public class Scope
{
    private int x = 1;
    public void begin()
    {
        int x = 5;
        System.out.printf( "local x in method begin is %d\n", x );
        useLocalVariable();
        useField();
        useLocalVariable();
        useField();
        System.out.printf( "\nlocal x in method begin is %d\n", x );
    }
    public void useLocalVariable()
    {
        int x = 25;
        System.out.printf( "\nlocal x on entering method useLocalVariable is %d\n", x );
        ++x;
        System.out.printf( "local x before exiting method useLocalVariable is %d\n", x );
    }
    public void useField()
    {
        System.out.printf( "\nfield x on entering method useField is %d\n", x );
        x *= 10;
        System.out.printf( "field x before exiting method useField is %d\n", x );
    }
}
*****
```

// Fig. 6.12: ScopeTest.java

```
public class ScopeTest
{
    public static void main( String args[] )
    {
        Scope testScope = new Scope();
        testScope.begin();
    }
}
```