This quiz is to be taken by yourself with closed books, closed notes, no calculators.

### Partial Operator Precedence Table

<table>
<thead>
<tr>
<th>Operators</th>
<th>Associativity</th>
</tr>
</thead>
<tbody>
<tr>
<td>* / %</td>
<td>left to right</td>
</tr>
<tr>
<td>+ -</td>
<td>left to right</td>
</tr>
<tr>
<td>&lt; &lt;= &gt; &gt;=</td>
<td>left to right</td>
</tr>
<tr>
<td>== !=</td>
<td>left to right</td>
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<tr>
<td>&amp;&amp;</td>
<td>left to right</td>
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<td></td>
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<tr>
<td>=</td>
<td>right to left</td>
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</tbody>
</table>

1) What are the values of $x$ and $y$ (left) and $a$ and $b$ (right) after the following code segments are executed?

```java
int x = 2, y = 4;
if ( x++ >= 3 || --y >= 3 )
x = x++ + --y;
else
    x = ++x + y--;
```

```java
int a = 2, b = 4;
if ( a++ >= 3 && --b >= 3 )
a = a++ + --b;
else
    a = ++a + b--;
```

<table>
<thead>
<tr>
<th>$x =$</th>
<th>$a =$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>$y =$</th>
<th>$b =$</th>
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</table>

2) What is the equivalent Java expression for the following expression such that no `!` operators are used?

$!( a > 5 && b != -9 )$

3) Assume we have a Java source file named `Program.java` and it uses at least one class in the `objectdraw` library.

Write the full Unix command to compile this Java program.

________________________________________________________________________

This command will produce a file named:

________________________________________________________________________

Write the full Unix command to run this as a Java application.

________________________________________________________________________

Assume we have correctly written a `Program.html` file. Write the full Unix command to run the above program as an applet.

________________________________________________________________________
4) Assume a program had the following declarations:

Location loc1 = new Location( 42, 420 );
Location loc2 = loc1;
Location loc3 = new Location( loc2 );

What results would be produced by evaluating the following expressions?

( loc1 == loc2 ) ____________ loc1.equals( loc3 ) ____________
( loc2 == loc3 ) ____________ loc3.equals( new Location( loc2 ) ) ____________

5) What output is produced with the following code fragment? Assume method1() is invoked as

Quiz2 q2 = new Quiz2();
q2.method1( 17 );

public class Quiz2
{
    private int a;         // Line 3
    public void method1( int x )
    {
        int a;
        // Line 7
        int b = x;
        a = b % 5;
        this.a = b / 3;
        System.out.println( "a = " + a );
        System.out.println( "b = " + b );
        System.out.println( "this.a = " + this.a );
        System.out.println( "method2() result = " + method2( x ) );
        System.out.println( "this.a = " + this.a );
    }
    private int method2( int x )
    {
        int a = x;
        int b = this.a;
        b = b * 2;
        System.out.println( "a = " + a );
        System.out.println( "b = " + b );
        System.out.println( "this.a = " + this.a );
        this.a = b + 2;
        return a + 2;
    }
}

Output:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>a</td>
<td>b</td>
<td>this.a</td>
</tr>
<tr>
<td>a</td>
<td>b</td>
<td>this.a</td>
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<td>a</td>
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<td>a</td>
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<tr>
<td>a</td>
<td>b</td>
<td>this.a</td>
</tr>
</tbody>
</table>

What is the initial value of a on Line 3? __________

What is the initial value of a on Line 7? __________