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>
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<tr>
<td>&lt;  &lt;=  &gt;  &gt;=</td>
<td>left to right</td>
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<tr>
<td>==  !=</td>
<td>left to right</td>
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<td>&amp;&amp;</td>
<td>left to right</td>
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<td></td>
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<tr>
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1) What are the values of x, y, z (left) and a, b, c (right) after the following code segments are executed?

```java
int x = 6, y = 3, z = 0;
if ( --x > 5 || y++ > 3 )
    z = ++x + y--;
else
    z = x++ + --y;
```

```java
int a = 8, b = 5, c = 0;
if ( ++a <= 8 && b-- >= 4 )
    c = a++ + --b;
else
    c = ++a + b--;
```

x = 
y = 
z = 
a = 
b = 
c = 

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

```java
!( x < 17 && y >= 3 )
```

3) Using only the statements below, select the order of the statements to draw a T such that the width of the T is size pixels and the height of the T is twice size pixels. Do not worry about where it is drawing. Assume the turtle is pointing up when the method is called and is positioned at the upper left corner of where we want to draw the T. Start drawing the T at the upper left corner of the T. Have the turtle end at the bottom of the T.

Write the letter corresponding to each statement in the correct order to draw a T. Do it in exactly 5 statements.

```java
public void drawT( int size )
{
    ___
    ___
    ___
    ___
    ___
}
```
4) Assume a program had the following definitions (Point has an x and a y value with proper equals() defined):

```java
Point p1 = new Point(37, 23);
Point p2 = new Point(p1);
Point p3 = p2;
```

What results would be produced by evaluating the following expressions (left to right; top to bottom)?

```java
p1 == p2 ____________  p1 == p3 ____________  p2 == p3 ____________
p1.equals(p2) ____________  p1.equals(p3) ____________  p2.equals(p3) ____________
p1.translate(1, 1); // Add 1 to the x and y coordinates in the Point object ref'ed by p1
p1.equals(p2) ____________  p1.equals(p3) ____________  p2.equals(p3) ____________
p2.translate(1, 1); // Add 1 to the x and y coordinates in the Point object ref'ed by p2
p1.equals(p2) ____________  p1.equals(p3) ____________  p2.equals(p3) ____________
p3.translate(1, 1); // Add 1 to the x and y coordinates in the Point object ref'ed by p3
p1.equals(p2) ____________  p1.equals(p3) ____________  p2.equals(p3) ____________
```

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

```java
Quiz2 q2 = new Quiz2();
q2.method1(11);
```

```
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( "a = " + a );
        System.out.println( "b = " + b );
        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 + 3;
        return a + 3;
    }
}
```

What is the initial value of `a` on Line 7? __________
What is the initial value of `a` on Line 3? __________

```
What is the initial value of `a` on Line 7? __________
What is the initial value of `a` on Line 3? __________
```

Output:
```
a = __________
b = __________
this.a = __________
a = __________
b = __________
this.a = __________
```