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>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>=</td>
<td>right to left</td>
</tr>
</tbody>
</table>

1) What is the value of `amt` for each of the expressions below? Note the type declarations for each. To represent an integer value, do not write a decimal point (for example: 99 or 42). To represent a double value, write a decimal point and one digit to the right of the decimal point (for example: 99.0 or 42.5).

```java
int amt = 10;
amt = amt + amt * (5 / 100);   ____________
int amt = 10;
amt = (int) (amt + amt * (5 / 100.0));  ____________
```

```java
double amt = 10;
amt = amt + amt * (5 / 100);   ____________
double amt = 10;
amt = amt + amt * (5 / 100.0);   ____________
```

2) Assume a program contained the following declarations:

```java
private Location loc1 = new Location( 37, 24 );
private Location loc2 = new Location( 37, 24 );
private Location loc3 = loc1;
```

What result would be produced by the expressions

```java
loc1 == loc2  ______________
loc1 == loc3  ______________
loc2.equals( loc1 ) ______________
loc3.equals( loc1 ) ______________
```

3) What is the result of each of the following expressions

```java
2 + 3 + "4"  ______________
"2" + 3 + 4   ______________
```
4) What is the equivalent Java expression for the following such that no `!` operators are used?

```
!( x <= 0 || x > 15 )
```

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

```java
Quiz2 q2 = new Quiz2();
q2.method1( 5 );
```

```java
public class Quiz2 {
    private int a;         // Line 3

    public void method1( int x )
    {
        int a;        // Line 7
        int b = x;
        a = b * 2;
        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:

```
a = __________
b = __________
this.a = __________
a = __________
b = __________
this.a = __________
method2() result = __________
this.a = __________
```

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

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