1) (2 pts each) 16pts
Suppose you have the following declarations:
boolean found = true;
boolean flag = false;
double x = 5.2;
double y = 3.4;
int a = 5, b = 8;
int n = 20;
char ch = ‘B’;

<table>
<thead>
<tr>
<th>Expression</th>
<th>Evaluates to</th>
</tr>
</thead>
<tbody>
<tr>
<td>!found</td>
<td></td>
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<tr>
<td>x &gt; 4.0</td>
<td></td>
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<tr>
<td>!found &amp;&amp; (x &gt;= 0)</td>
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<tr>
<td>!(found &amp;&amp; (x &gt;= 0))</td>
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<tr>
<td>x + y &lt;= 20.5</td>
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<tr>
<td>(n &gt;= 0) &amp;&amp; (n &lt;= 100)</td>
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<tr>
<td>(‘A’ &lt;= ch &amp;&amp; ch &lt;= ‘Z’)</td>
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<tr>
<td>(a + 2 &lt;= b) &amp;&amp; !flag</td>
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</tbody>
</table>

2) (2 pts each) 8pts

<table>
<thead>
<tr>
<th>Statement</th>
<th>Output of Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>If (6 &lt; 2 * 5)</td>
<td></td>
</tr>
<tr>
<td>System.out.print(“Hello”);</td>
<td></td>
</tr>
<tr>
<td>System.out.print(” There”);</td>
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<tr>
<td>If (’a’ &gt; ’b’</td>
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<tr>
<td>System.out.println(“yes”);</td>
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<tr>
<td>Else</td>
<td></td>
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<tr>
<td>System.out.println(“no”);</td>
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<tr>
<td>If (7 &lt;= 7)</td>
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<tr>
<td>System.out.println(6 - 9 * 2 / 6);</td>
<td></td>
</tr>
<tr>
<td>If (5 &lt; 3)</td>
<td></td>
</tr>
<tr>
<td>If (7 == 8)</td>
<td></td>
</tr>
<tr>
<td>System.out.println(“&amp;”);</td>
<td></td>
</tr>
<tr>
<td>Else</td>
<td></td>
</tr>
<tr>
<td>System.out.println(“%”);</td>
<td></td>
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</tbody>
</table>
3) 5pts
Rewrite the entire set of statements below using curly braces in two different ways such that the “else” block belongs to (1) the inner if block of “if (a == c)” and (2) it belongs to the outer if block “if (a < b).

```java
if (a < b)
  if (a == c)
    System.out.println("yes");
  else
    System.out.println("no");
```

4) 6 pts
Suppose x = 5, what is the output of the following set of statements?
```java
int x = 5;
if (++x < 6)
  if (++x > 5)
    if (++x >= 9)
      System.out.println("1: " + (x % 2 == 0 ? "yes" : "no");
    else
      System.out.println("2: " + (x % 2 == 0 ? "yes" : "no");
  else
    System.out.println("3: " + (x % 2 == 0 ? "yes" : "no");
else
  System.out.println("4: " + (x % 2 == 0 ? "yes" : "no");
```

4) 5 pts
Suppose alpha = 4, what is the output of the following set of statements?
```java
int alpha = 4;
switch (alpha) {
  case 1:
  case 2: alpha = alpha + 2;
    break;
  case 4: alpha++;
  case 5: alpha = 2 * alpha;
    break;
  case 6: alpha = alpha + 5;
    break;
  default: alpha--;
}
System.out.println(alpha);
```
5) 10pts
Rewrite the following code to use one “if” statement with two “else if (...)” statements followed by an “else” statement.

```cpp
if (balance >= 50000.00)
    interestRate = 0.07;
else
    if (balance >= 25000.00)
        interestRate = 0.05;
    else
        if (balance >= 1000.00)
            interestRate = 0.03;
        else
            interestRate = 0.00;
```