1. What is the return value of this function when the parameter x has the value of 3?

```javascript
function func(x)
{
  if (x < 2)
  {
    return x*2;
  }
  else if (x > 4)
  {
    return x*4;
  }
  else
  {
    return x*3;
  }
}
```

2. If the temperature is stored in the variable temp and wearCoat() results in wearing a coat, which conditional corresponds to the following statement: "if the temperature is greater than 30 and not warmer than 50, wear a coat".
   a.  if (temp > 30 && temp <= 50)
       {
        wearCoat();
        }
   b.  if (temp > 30 || temp <= 50)
       {
        wearCoat();
        }
   c.  if (temp > 30 && temp < 50)
       {
        wearCoat();
        }
   d.  if (temp > 30 || temp < 50)
       {
        wearCoat();
        }

3. Which conditional does not contain an error in the code?
   a.  if (x = 50)
   b.  if (x =! 40)
   c.  if (x > 40 || x < 20)
   d.  if (x > 20 & > 30)
4. What is the return value of the following code?

```javascript
function func()
{
  var x = 1;
  if (x < 3)
  {
    x += 2;
  }
  if (x < 6)
  {
    x += 4;
  }
  else if (x < 8)
  {
    x += 8;
  }
  if (x > 5)
  {
    x += 1;
  }
  return x;
}
```

5. Write a function that translates a numeric grade (stored as a number in the grade parameter to a function) into a letter grade where an "A" is greater than or equal to a 90, a "B" is greater than or equal to an 80, a “C” is greater than or equal to 70, and an “F” for anything below 70.

6. Consider a function that takes an array of grades, where each grade is a number between 0 and 100. Write a function to calculate the number of As that appear in the grades array, where an A is a 90 or above.

7. If the function print(value) prints the content of value to the screen, how many times does the following code print "Hello" to the screen?

```javascript
var x = 0;
while (x < 5)
{
  print("Hello");
  x++;  
}
```

8. If the function print(value) prints the content of value to the screen, how many times does the following code print "Hello" to the screen?

```javascript
var x = 16;
while (x > 2) {
  print("Hello");
  x /= 2;
}
```
9. If the function print(value) prints the content of value to the screen, how many times does the following code print "Hello" to the screen?

```javascript
var a = [1, 2];
for (var i = 0; i < a.length; i++)
{
    print("Hello");
}
```

10. If the function print(value) prints the content of value to the screen, how many times does the following code print "Hello" to the screen?

```javascript
var a = [2, 2, 2, 2];
for (var i = 0; i < a.length; i++)
{
    print("Hello");
}
```

11. What is the value of x after the following code has executed?

```javascript
var a = [2, 4, 6, 8, 10];
var x = 0;
for (var i = 0; i < a.length; i++)
{
    x += a[i];
}
```

12. What is the decimal representation of the binary number: 1110

13. What is the decimal representation of the binary number: 00011

14. The ASCII code for the letter "A" is 65, "B" is 66, "C" is 67, and so forth. What is the value of `String.fromCharCode(70)`?

15. In HTML, what two elements are required inside of the `<html>` element?

16. The JavaScript function `document.getElementById("whatever").innerHTML` changes the HTML inside the element that has the name "whatever" as the value of what attribute?

17. What is the value of x after the following code has executed?

```javascript
var x = 4;
x += 3;
```
18. What is the value of temp after the following code has executed?

```javascript
var k = 5;
var m = 7;
var z = 3;
var temp = (m * z) + k;
```

19. What is the value of s after the following code has executed?

```javascript
var s = "Hello";
s += "World";
s = "Big" + s;
```

20. What is the value of a.length given the following definition of a?

```javascript
var a = [[2, 3], [3, 4], [4, 5]];
```

21. What is the value of a[1] given the following definition of a?

```javascript
var a = ["Hello", "Champaign", "Urbana"]; 
```

22. The following data is in what common format?

```
product,quantity,price
apple,10,5.50
orange,2,1.02
banana,6,0.53
```

23. Out of CSV, XML, HTML, and JSON formats, which format can be opened in Excel by double clicking the file (eg: without the use of an import wizard)?

24. Which of the following is not a native/basic data type in Excel?
   a. Equation
   b. String
   c. Boolean
   d. Date

25. Which of the following is an array in Excel?
   a. [A1, A2, A3, A4, A5, A6]
   b. A1:6
   c. =["one", "two"]
   d. A1:A6
For the next five questions, consider the following spreadsheet:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon Rank</td>
<td>Days on List</td>
<td>Week Change</td>
<td>Author</td>
<td>Title</td>
</tr>
<tr>
<td>1</td>
<td>20</td>
<td>Equal</td>
<td>Michael Lewis</td>
<td>Flash Boys: A Wall Street Revolt</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>Up</td>
<td>Marina Keegan</td>
<td>The Opposite of Loneliness: Essay</td>
</tr>
<tr>
<td>3</td>
<td>96</td>
<td>Equal</td>
<td>Disney</td>
<td>Frozen Little Golden Book (Disney)</td>
</tr>
<tr>
<td>4</td>
<td>844</td>
<td>Down</td>
<td>John Green</td>
<td>The Fault in Our Stars</td>
</tr>
<tr>
<td>5</td>
<td>163</td>
<td>Down</td>
<td>Veronica Roth</td>
<td>Divergent Series Complete Box Set</td>
</tr>
<tr>
<td>6</td>
<td>56</td>
<td>Equal</td>
<td>Disney</td>
<td>Journey to the Ice Palace (Disney)</td>
</tr>
<tr>
<td>7</td>
<td>438</td>
<td>Down</td>
<td>Veronica Roth</td>
<td>Divergent</td>
</tr>
<tr>
<td>8</td>
<td>839</td>
<td>Down</td>
<td>Todd Burpo</td>
<td>Heaven is for Real: A Little Boy’s A</td>
</tr>
<tr>
<td>9</td>
<td>419</td>
<td>Equal</td>
<td>Veronica Roth</td>
<td>Insurgent (Divergent, Book 2) (Div</td>
</tr>
<tr>
<td>10</td>
<td>31</td>
<td>Down</td>
<td>JJ Smith</td>
<td>10-Day Green Smoothie Cleanse:</td>
</tr>
</tbody>
</table>

26. Using a single Excel formula, write a formula to find the average number of days the top ten items have been ranked.

27. Using a single Excel formula: How many items were authored by Veronica Roth?

28. Using a single Excel formula: How many items were not authored by Disney?

29. Using a single Excel formula: What formula will display the author of the item that has been on the list the longest?

30. Using a single Excel formula: How many books have Divergent in the title on the list?

For the next five questions, consider the following spreadsheet:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>123</td>
<td>45</td>
</tr>
<tr>
<td>2</td>
<td>345</td>
<td>67</td>
</tr>
<tr>
<td>3</td>
<td>567</td>
<td>89</td>
</tr>
</tbody>
</table>

31. If the cell B2 was copied and pasted in D2, what would appear in the cell D2?

32. If the formula =B2 is inserted in D2, what would Excel show as the value in D2?

33. If the formula =B$2 is inserted in D2 and then D2 is copied and pasted into E3, what would Excel show as the value in D2?

34. What is the value of =INDEX(A:A, 2)?

35. What is the value of =SUM(B1:C2)?
For the next two questions, consider the following Excel workbook that contains three sheets for the next two questions.

The first sheet, **Overview**, is blank. This sheet will be used for you to write your answers in for this question set.

The second sheet, **Unemployment**, lists the long term unemployment of several Western European countries:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Denmark</td>
<td>1.9</td>
<td>2.2</td>
<td>2.1</td>
<td>1.9</td>
<td>2.1</td>
<td>1.9</td>
<td>2.1</td>
<td>1.9</td>
<td>2.1</td>
<td>1.9</td>
</tr>
<tr>
<td>3</td>
<td>Finland</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>4</td>
<td>France</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
</tr>
<tr>
<td>5</td>
<td>Germany</td>
<td>3.2</td>
<td>2.9</td>
<td>2.8</td>
<td>2.6</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>6</td>
<td>Ireland</td>
<td>8.4</td>
<td>8.3</td>
<td>8.9</td>
<td>9.2</td>
<td>9.6</td>
<td>9.4</td>
<td>9.4</td>
<td>9.3</td>
<td>8.5</td>
<td>8.2</td>
</tr>
<tr>
<td>7</td>
<td>Italy</td>
<td>4.3</td>
<td>4.2</td>
<td>4.1</td>
<td>4.9</td>
<td>5.3</td>
<td>5.6</td>
<td>5.3</td>
<td>6.4</td>
<td>7.1</td>
<td>6.8</td>
</tr>
<tr>
<td>8</td>
<td>Norway</td>
<td>0.7</td>
<td>0.9</td>
<td>0.8</td>
<td>0.7</td>
<td>0.7</td>
<td>0.5</td>
<td>0.6</td>
<td>0.7</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>9</td>
<td>Spain</td>
<td>8.6</td>
<td>8.6</td>
<td>8.9</td>
<td>9.9</td>
<td>10.3</td>
<td>10.9</td>
<td>11.2</td>
<td>12.2</td>
<td>12.8</td>
<td>13</td>
</tr>
<tr>
<td>10</td>
<td>Sweden</td>
<td>1.7</td>
<td>1.5</td>
<td>1.4</td>
<td>1.4</td>
<td>1.6</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>11</td>
<td>United Kingdom</td>
<td>2.7</td>
<td>2.6</td>
<td>2.7</td>
<td>2.7</td>
<td>2.8</td>
<td>2.7</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
<td></td>
</tr>
</tbody>
</table>

The third sheet, **Population**, lists the population of these countries:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Population (July 2013)</td>
</tr>
<tr>
<td>2</td>
<td>Germany</td>
<td>81,840,000</td>
</tr>
<tr>
<td>3</td>
<td>United Kingdom</td>
<td>64,231,000</td>
</tr>
<tr>
<td>4</td>
<td>France</td>
<td>63,702,000</td>
</tr>
<tr>
<td>5</td>
<td>Italy</td>
<td>61,789,000</td>
</tr>
<tr>
<td>6</td>
<td>Spain</td>
<td>46,958,000</td>
</tr>
<tr>
<td>7</td>
<td>Sweden</td>
<td>9,595,000</td>
</tr>
<tr>
<td>8</td>
<td>Denmark</td>
<td>5,612,000</td>
</tr>
<tr>
<td>9</td>
<td>Finland</td>
<td>5,436,000</td>
</tr>
<tr>
<td>10</td>
<td>Norway</td>
<td>5,077,000</td>
</tr>
<tr>
<td>11</td>
<td>Ireland</td>
<td>4,662,000</td>
</tr>
</tbody>
</table>

**36.** Write a formula for the Overview sheet that displays the country with the largest population.

**37.** Write a formula for the Overview sheet that displays the population of the country that had the lowest long term unemployment in during the first quarter of 2012 (column F in the Unemployment sheet). Your formula must dynamically find the lowest unemployment (eg: your formula must not contain A8, "Norway", or similar).