

Note: Correct responses are based on Java, **J2sdk v 1.7.25**, from Sun Microsystems, Inc. All provided code segments are intended to be syntactically correct, unless otherwise stated (i. e. `error` is an answer choice) and any necessary Java 2 Standard Packages have been imported. Ignore any typographical errors and assume any undefined variables are defined as used. **For all output statements, assume that the `System` class has been statically imported...** `import static java.lang.System.*;`

<b>QUESTION 1</b>	
What is $11_2$ minus $10_2$ ?	
A. $11_2$	B. $10_2$ C. $22_2$ D. $2_{10}$ E. $1_2$
<b>QUESTION 2</b>	
What is output by the code to the right?	<pre>int a = 5; int b = 3; a = b; out.println(a);</pre>
A. 0      B. 5      C. 3      D. a      E. b	
<b>QUESTION 3</b>	
What is output by the code to the right?	<pre>double c = 5; c += 4.9; out.println(c);</pre>
A. 9.9      B. 4.9      C. 5.0      D. 10.0      E. 10	
<b>QUESTION 4</b>	
What is output by the code to the right?	<pre>double d = Math.min(13,5); d = Math.max(d,14); out.println(d);</pre>
A. 0.0      B. 1.0      C. 5.0      D. 13.0      E. 14.0	
<b>QUESTION 5</b>	
What is output by the code to the right?	<pre>int e = 8*3%4*5-3; out.println(e);</pre>
A. -3      B. 8      C. 7      D. -9      E. 0	
<b>QUESTION 6</b>	
What is output by the code to the right?	<pre>String f = "cteprogramming"; f=f.substring(0,f.indexOf('m')+1); out.println(f);</pre>
A. cte      B. program      C. prog D. cteprogram      E. cteprog	
<b>QUESTION 7</b>	
What is output by the code to the right?	<pre>String g = "state"; String h = "start"; out.println(h.compareTo(g));</pre>
A. 2      B. 1      C. -1      D. 0      E. -2	
<b>QUESTION 8</b>	
What is output by the code to the right?	<pre>int i = 28; i /= 3; out.println(i);</pre>
A. 8      B. 9      C. 7      D. 10      E. 0	
<b>QUESTION 9</b>	
What is output by the code to the right?	<pre>int j=32; while( j &gt; 0){     j-=4; } out.println(j);</pre>
A. -1      B. 0      C. -2      D. 1      E. 0	
<b>QUESTION 10</b>	
What is output by the code to the right?	<pre>int[] k = {2,3,5,7,9,11,-4}; int[] m = k; m[1] = 4; m[2] = m[5]; out.println(k[2] + m[3]);</pre>
A. 8      B. 18      C. 12      D. 5      E. 13	

<p><b>QUESTION 11</b></p> <p>What is the <i>last</i> value output by the code to the right ?</p> <p>A. 17.75    B. 17.5    C. 20.0    D. 18.0    E. 20</p>	<pre>for(double p=-5; p&lt;17.75; p+=2.5)     out.println(p);</pre>
<p><b>QUESTION 12</b></p> <p>What is output by the code to the right?</p> <p>A. 0    B. 1    C. false    D. true    E. n</p>	<pre>boolean n=false; boolean o=true; out.println( o ^ ( n &amp; o ) );</pre>
<p><b>QUESTION 13</b></p> <p>What is output by the code to the right?</p> <p>A. 20    B. 1    C. 15    D. 10    E. 16</p>	<pre>out.println( 13 &amp; 12   11 );</pre>
<p><b>QUESTION 14</b></p> <p>What correctly replaces <b>&lt;*1&gt;</b> in the code to the right ?</p> <p>A. Boolean    B. long    C. char</p> <p>D. A and B only    E. A, B, and C</p>	<pre>ArrayList&lt; &lt;*1&gt; &gt; aList; aList = new ArrayList&lt; &lt;*1&gt; &gt;();</pre>
<p><b>QUESTION 15</b></p> <p>What replaces <b>&lt;*1&gt;</b> in the code to the right so method test will return true if parameter x is at least three times as big as y?</p> <p>A. return x &gt;= y+y+y;</p> <p>B. return x &gt;= y*3;</p> <p>C. return x &gt;= (int)Math.pow(y, 3);</p> <p>D. A and B only</p> <p>E. A, B, and C</p>	<pre>public boolean test(double x, int y) {     &lt;*1&gt; }</pre>
<p><b>QUESTION 16</b></p> <p>What is output by the code to the right?</p> <p>A. pi8    B. pi31    C. pi314    D. 314    E. pi</p>	<pre>out.println( "pi" + 3 + 1 + 4 );</pre>
<p><b>QUESTION 17</b></p> <p>What is output by the code to the right?</p> <p>A. 7.0    B. 7.4    C. 7.37    D. 7.36    E. 7.3</p>	<pre>double u = 7.3617f; String v = String.format("%.2f",u); out.println(v);</pre>
<p><b>QUESTION 18</b></p> <p>What is the output of // line 1?</p> <p>A. 8.2</p> <p>B. 5.5</p> <p>C. 3.3</p> <p>D. 6.1</p> <p>E. There is no output due to a syntax error.</p>	<pre>Stack&lt;Double&gt; w; w = new Stack&lt;Double&gt;(); w.add(3.3); w.push(6.1); w.add(8.2); w.push(5.5); out.println(w.peek());    // line 1 w.pop(); w.pop(); out.println(w.pop());    // line 2</pre>
<p><b>QUESTION 19</b></p> <p>What is the output of // line 2?</p> <p>A. 8.2</p> <p>B. 5.5</p> <p>C. 3.3</p> <p>D. 6.1</p> <p>E. There is no output due to a syntax error.</p>	

**QUESTION 20**

Which of the following is the type of tree in which every node has exactly two children?

- A. complete                      B. binary                      C. huffman                      D. pascal                      E. more than one of these

**QUESTION 21**

Which of the following does *not* implement the Comparable interface?

- A. Double                      B. Stack                      C. String                      D. Long                      E. Boolean

**QUESTION 22**

What is output by the code to the right?

- A. 0                      B. 1                      C. -1                      D. 3.0  
E. There is no output due to a syntax error.

```
Comparable x;
x = new Double("4.7");
Comparable y;
y = new Double("7.4");
out.println(x.compareTo(y));
```

**QUESTION 23**

What correctly replaces **<\*1>** in the code to the right so all elements of `sc` are inspected?

- A. `sc.nextInt()`                      B. `sc.next()`  
C. `sc.hasNextInt()`                      D. `sc.hasNextUn()`  
E. `sc`

```
String st = "8+4-5+2";
Scanner sc = new Scanner( st );
sc.useDelimiter("[+-]");
int sum=0;
while( <*1> )
{
    sum += sc.nextInt();
}
out.println(sum);
```

**QUESTION 24**

Assume **<\*1>** was filled correctly. What is output by the code to the right?

- A. 15                      B. 11                      C. 19                      D. 13                      E. 16

**QUESTION 25**

What is the output of `// line 1`?

- A. 2                      B. 7                      C. 3                      D. 4                      E. 0

```
Queue<Integer> iq;
iq = new PriorityQueue<Integer>();
iq.add(3);
iq.add(7);
iq.add(4);
iq.add(2);
out.println(iq.remove()); // line 1
iq.add(0);
out.println(iq.remove()); // line 2
```

**QUESTION 26**

What is the output of `// line 2`?

- A. 2                      B. 7                      C. 3                      D. 4                      E. 0

**QUESTION 27**

What is the output of `// line 1`?

- A. bumble                      B. trains                      C. henry  
D. thomas                      E. optimus

```
Map<Integer, String> junk;
junk = new TreeMap<Integer, String>();
junk.put(3,"prime");
junk.put(7,"trains");
junk.put(2,"optimus");
junk.put(2,"thomas");
junk.put(1,"bee");
junk.put(1,"henry");
junk.put(2,"bumble");
```

**QUESTION 28**

What is the output of `// line 2`?

- A. bumble                      B. trains                      C. henry  
D. thomas                      E. optimus

```
out.println(junk.get(1)); // line 1
out.println(junk.get(7)); // line 2
out.println(junk.size()); // line 3
```

**QUESTION 29**

What is the output of `// line 3`?

- A. 3                      B. 4                      C. 5                      D. 6                      E. 7

**QUESTION 30**

Given a list of 1500 items, what is the minimum number of checks needed to see if a specified value exists using a binary search?

- A. 9                      B. 10                      C. 12                      D. 11                      E. 8

**QUESTION 31**

Which of the following methods is called when attempting to insert a new Object into a HashSet?

- A. hashCode()              B. sameAs()              C. equals()              D. compare()              E. more than one of these

**QUESTION 32**

What is returned by the call test( 123 ) ?

- A. 0  
B. 1  
C. 2  
D. 3  
E. There is no output due to a runtime error.

```
public static int test( int x )
{
    if( x == 0 )
        return 0;
    if( x % 10 != 0 && x % 10 % 2 != 0 )
        return 1 + test( x / 10 );
    return 0 + test( x / 10 );
}
```

**QUESTION 33**

What is returned by the call test( 150231178 ) ?

- A. 4  
B. 5  
C. 6  
D. 7  
E. There is no output due to a runtime error.

**QUESTION 34**

What is output by the code to the right?

- A. 363  
B. 410  
C. 298  
D. 317  
E. 341

```
int n = 9;
int[] wile = new int[n+1];
wile[n]=1;
for(int i = n-1; i >= 0; i--){
    int ans = 0;
    ans += wile[i+1];
    if(i != n-1){
        ans += 2 * wile[i+2];
    }
    wile[i] = ans;
}
System.out.println(wile[0]);
```

**QUESTION 35**

What is output by the code at right?

- A. 4  
B. 7  
C. 8  
D. 9  
E. There is no output due to a syntax error.

```
int x = 7;
int y = x--;
int z = 6 + x - y;
out.print(z - x * (x + y) % y);
```

<p><b>QUESTION 36</b></p> <p>What is output by the code at right?</p> <p>A. false false</p> <p>B. true true</p> <p>C. false true</p> <p>D. true false</p> <p>E. There is no output due to a syntax error.</p>	<pre>String sam = new String("wile"); String ben = new String("wile"); String wil = new String("wile"); out.print( sam == ben ); sam = wil; out.print( " " + (sam == wil) );</pre>
<p><b>QUESTION 37</b></p> <p>What is output by the code at right?</p> <p>A. 20</p> <p>B. 25</p> <p>C. 18</p> <p>D. 14</p> <p>E. 23</p>	<pre>String m = "uil comp sci"; int v = m.charAt(0) + m.charAt(2); v = v / ( m.length() ); System.out.println( v );</pre>
<p><b>QUESTION 38</b></p> <p>What is output by the code at the right?</p> <p>A. 30</p> <p>B. 30 uil</p> <p>C. 30 state</p> <p>D. uil 30 state</p> <p>E. ws</p>	<pre>int w = 30; String s; s = (w==30)?"uil":"state"; out.println(w + " " + s);</pre>
<p><b>QUESTION 39</b></p> <p>What is the output of //line 1 ?</p> <p>A. 5</p> <p>B. 4</p> <p>C. 6</p> <p>D. 7</p> <p>E. 0</p>	<pre>String x = "bensammywilecooldudes"; String[] st = x.split("[ieo]");  out.println(st.length);    //line 1</pre>
<p><b>QUESTION 40</b></p> <p>What is the output of //line 2 ?</p> <p>A. b                                      B. c</p> <p>C. 1                                        D. s</p> <p>E. Nothing is printed due to a blank in the array.</p>	<pre>int z = st.length-4; out.println(st[ z ]);      //line 2</pre>