

Note: Correct responses are based on Java, J2sdk v 6.0, 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.

**QUESTION 1**

What is  $11110001_2$  plus  $11100001_2$  ?

- A.  $467_{10}$                       B.  $11010010_2$                       C.  $111010011_2$                       D.  $34_{10}$                       E.  $1D2_{16}$

**QUESTION 2**

What is output by the code to the right?

- A. 35                      B. 4                      C. 3                      D. 36                      E. 17

```
int a = 17;
a = 3 * a - 16;
System.out.println(a);
```

**QUESTION 3**

What is output by the code to the right?

- A. .5714                      B. 4                      C. 3                      D. 4.0                      E. 3.571

```
int a = 25;
a %= 7;
System.out.println(a);
```

**QUESTION 4**

What is output by the code to the right?

- A. 41                      B. 55                      C. 54                      D. 50                      E. 0

```
int count = 0;
for(int i = 5; i > 2; i--)
    count += Math.pow(i,2);
System.out.println(count);
```

**QUESTION 5**

What is output by the code to the right?

- A. der                      B. de                      C. nde                      D. nd  
E. The code to the right produces an index out of bounds exception.

```
String str = "Ender";
out.println(str.substring(2,5));
```

**QUESTION 6**

What is output by the code to the right?

- A. 36                      B. 51                      C. 42                      D. 31                      E. 20

```
int[] list;
list = new int[]{26, 18, 29,
                25, 11, 2, 13};
out.println(list[2] + list[6]);
```

**QUESTION 7**

What could be output by the code to the right?

- A. The value of b is printed if variable a is false.  
B. true  
C. The value of a is printed.  
D. false  
E. The output cannot be determined.

```
boolean a = //some value
boolean b = //some value
boolean c = //some value
c = a || b || !(a && c);
out.println(c);
```

**QUESTION 8**

What is output by the code to the right?

- A. 20                      B. 10  
C. 21                      D. 7  
E. 18

```
int a = 7;
if(a > 17)
    a += 3;
else if(a < 6)
    a += 11;
out.print(a);
```

<p><b>QUESTION 9</b></p> <p>What is output by the code to the right?</p> <p>A. 2.0      B. 1.0      C. 2      D. 1.666      E. 1</p>	<pre>out.print( 15 / 9 );</pre>
<p><b>QUESTION 10</b></p> <p>Which of the following correctly instantiates an object from the class to the right?</p> <p>A. Spaceship hull = new Spaceship();  B. Spaceship ship = new Spaceship(5);  C. Spaceship ship = new Spaceship(3,12);  D. both A and B  E. both B and C</p>	<pre>public class Spaceship {     private int hull;      public Spaceship(int x){         hull = x;     }      public Spaceship(){         hull = 10;     }      public void damage(int x, int y)     {         hull -= x * y;     } }</pre>
<p><b>QUESTION 11</b></p> <p>What could be a possible output by the code to the right?</p> <p>A. 13.706      B. 0.6072  C. 3.093      D. 15.093  E. more than one of these</p>	<pre>out.println(Math.random()*10+5);</pre>
<p><b>QUESTION 12</b></p> <p>Assuming ' ' indicates a space, what is output by the code to the right?</p> <p>A. ----battle      B. -battle---  C. --battle--      D. battle----  E. -----battle</p>	<pre>out.printf("%-10s", "battle");</pre>
<p><b>QUESTION 13</b></p> <p>What is output by the code to the right?</p> <p>A. 97      B. 87  C. 70      D. 70  17      710  E. 5416  710</p>	<pre>out.println(54 + 16 + "\n" + 7 + 10);</pre>
<p><b>QUESTION 14</b></p> <p>What is output by the code to the right?</p> <p>A. 8      B. 6      C. 7      D. 5      E. 2</p>	<pre>int[][] x = new int[3][3]; int count = 0; for(int i=0; i&lt;3; i++)     for(int j=0; j&lt;3; j++)         x[i][j] = count++; out.println(x[2][1]);</pre>

<p><b>QUESTION 15</b></p> <p>What is output by the code to the right?</p> <p>A. t                                      B. alentine C. v                                        D. alentin E. nothing</p>	<pre>String str = "Valentine"; for(int i = 0; i &lt; str.length(); i++)     if(str.charAt(i)&gt;str.charAt(i/2))         out.print (str.charAt(i));</pre>
<p><b>QUESTION 16</b></p> <p>What is output by the code to the right?</p> <p>A. drratgon                              B. draratgon C. ratraon                                D. raraton E. rgrato</p>	<pre>String army1 = "dragon"; String army2 = "rat"; String newArmy; newArmy = army1.substring(1,3) +     army2 + army1.substring(4); out.print(newArmy);</pre>
<p><b>QUESTION 17</b></p> <p>What is output by the code to the right?</p> <p>A. 10010    B. 18            C. 16            D. 0            E. 1</p>	<pre>out.println(18   16);</pre>
<p><b>QUESTION 18</b></p> <p>What is output by the code to the right?</p> <p>A. false B. a C. true D. There is no output due to a syntax error. E. There is no output due to a runtime error.</p>	<pre>boolean a = true; boolean b = false; a = b &amp;&amp; !b    a &amp;&amp; (a    b); System.out.println(a);</pre>
<p><b>QUESTION 19</b></p> <p>What is the result of running the code at right?</p> <p>A. [21, 12, 15] B. [12, 27, 15] C. [21, 27, 15, 12] D. There is no output due to a syntax error. E. The code results in a memory address being printed.</p>	<pre>ArrayList&lt;Integer&gt; list; list = new ArrayList&lt;Integer&gt;(); list.add(21); list.add(27); list.remove(1); list.add(15); list.add(1,12); out.println(list);</pre>
<p><b>QUESTION 20</b></p> <p>What is output by the code to the right?</p> <p>A. 24            B. 4.52    C. 24.5    D. 42            E. 22.4</p>	<pre>int a = 14; int b = 3; out.print(a % b); out.println(a / b);</pre>
<p><b>QUESTION 21</b></p> <p>What is output by the code to the right?</p> <p>A. 7 B. 1 C. 0 D. There is no output due to a syntax error. E. There is no output due to a runtime error.</p>	<pre>String enemy = "formics"; int index = 0; do {     index++; }while(enemy.charAt(index)!='f'); out.println(index);</pre>

## QUESTION 22

Which of the following correctly replaces `<*1>` in the code to the right such that all four return statements are probable?

- A. `double t = (double) (y/num);`
- B. `int t = (double) y / num;`
- C. `int t = y / (double) num;`
- D. `double t = y / (double) num;`
- E. `double t = y / num;`

## QUESTION 23

Assume `<*1>` is filled in correctly, what is returned by the method call `appRate(50,100)`?

- A. golden age
- B. unrest
- C. normal
- D. appRate
- E. revolution

```
public String appRate(int num, int y)
{
    <*1>
    if(t < 0.1)
        return "revolution";
    else if(t < 0.3)
        return "unrest";
    else if(t <= 0.5)
        return "normal";
    else
        return "golden age";
}
```

**QUESTION 24**

Which of the following correctly replaces **<\*1>** in the code to the right?

- A. new Worthing(x);
- B. super(x);
- C. super( );
- D. new Worthing( );
- E. yrsDown = x;

**QUESTION 25**

Which of the following correctly replaces **<\*2>** in the code to the right that will print the value of yrsUp?

- A. getYearsUp()
- B. yrsUp
- C. q.getYearsUp()
- D. q.yrsUp
- E. yrsDown

**QUESTION 26**

Which of the following correctly replaces **<\*3>** in the code to the right that will print the value of yrsDown?

- A. q.getYearsDown()
- B. getYearsDown()
- C. Worthing.getYearsDown()
- D. q.super.yrsDown;
- E. yrsUp

**QUESTION 27**

What is output by //line 1 in the code on the right ?

- A. g
- B. c
- C. G
- D. K
- E. k

**QUESTION 28**

What is output by //line 2 in the code on the right?

- A. [G, I, K, S, Z]
- B. GIKSZ]
- C. GIKSZ3
- D. GIKSZc
- E. The memory address of the array is printed.

```
public class Worthing
{
    private int yrsDown;

    public Worthing(int x)
    {
        yrsDown = x;
    }

    public int getYearsDown()
    {
        return yrsDown;
    }
}

public class Capitol extends Worthing
{
    private int yrsUp;

    public Capitol( int x )
    {
        <*1>
        yrsUp = x/10+1;
    }

    public int getYearsUp()
    {
        return yrsUp;
    }
}

////////////////////////////////////
//client code
Capitol q = new Capitol(22);
out.println( <*2> );
out.println( <*3> );
```

```
int[] list = {8,10,6,28,25,18};
char[] ray = new char[6];

for(int i = 0; i<list.length; i++)
    ray[i]=(char)('A' + list[i]);

out.println(ray[2]);           //line 1

Arrays.sort(ray);

out.println(ray);              // line 2
```

**QUESTION 29**

What is returned by the method call `mystery(-3)`?

- A. 15      B. 11      C. 14      D. 12  
E. Nothing is returned as the code results in infinite recursion.

**QUESTION 30**

What is returned by the method call `mystery(-8)`?

- A. 20      B. 21      C. 17      D. 18  
E. Nothing is returned as the code results in infinite recursion.

```
public int mystery(int x)
{
    if(x != 5)
        return 3 + mystery(x + 2);
    return -1;
}
```

**QUESTION 31**

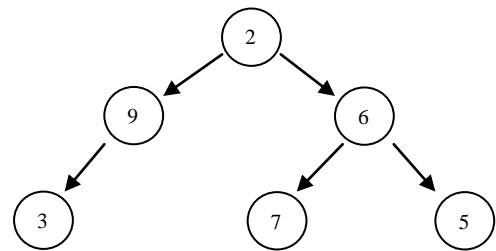
What is  $29_{12} * 1001_2$ ?

- A.  $10101000_2$       B.  $450_8$       C.  $297_{10}$       D.  $128_{16}$       E.  $54_{13}$

**QUESTION 32**

What would be printed if a post order traversal is used?

- A. 5 7 3 6 9 2  
B. 3 9 7 5 6 2  
C. 3 9 2 7 6 5  
D. 2 9 3 6 7 5  
E. 5 6 7 2 9 3


**QUESTION 33**

Which of the following correctly replaces `<*1>` in the code to the right?

- A. `Set<String>`  
B. `TreeSet<String>`  
C. `HashSet<String>()`  
D. A, B, and C  
E. A and B

```
<*1> ships = new TreeSet<String>();
ships.add("Yamamoto");
ships.add("Maul");
ships.add("Tardis");
out.print(ships); //line 2

ships.add("Tardis");
ships.remove("Tardis");
ships.add("GRITLiner");
out.print(ships); //line 3
```

**QUESTION 34**

What is output by `//line 2` in the code to the right?

- A. a memory address  
B. `[Maul, Tardis, Yamamoto]`  
C. `[Tardis, Yamamoto, Maul]`  
D. `[Yamamoto, Maul, Tardis]`  
E. `[Maul, Yamamoto, Tardis]`

**QUESTION 35**

What is output by `//line 3` in the code to the right?

- A. `[Yamamoto, Maul, Tardis, GRITLiner]`  
B. `[Yamamoto, Maul, GRITLiner]`  
C. `[GRITLiner, Maul, Tardis, Yamamoto]`  
D. `[GRITLiner, Maul, Yamamoto]`  
E. The memory address of the set is printed.

<p><b>QUESTION 36</b></p> <p>What is output by //line 1 in the code to the right?</p> <p>A. 6</p> <p>B. 22</p> <p>C. 13</p> <p>D. 9</p> <p>E. There is no output due to a syntax error.</p>	<pre>Queue&lt;Integer&gt; q; q = new LinkedList&lt;Integer&gt;(); q.add(9); q.add(22); q.add(22); q.add(6); q.add(13); q.remove(); out.println(q.peek());           //line 1</pre>
<p><b>QUESTION 37</b></p> <p>What is output by //line 2 in the code to the right?</p> <p>A. [9, 22, 22, 6, 29]</p> <p>B. [9, 22, 6, 29]</p> <p>C. [13, 26, 3, 29]</p> <p>D. [6, 13, 26, 3, 29]</p> <p>E. There is no output due to a syntax error.</p>	<pre>q.add(26); q.remove(); q.add(3); q.remove(); q.add(29); System.out.println(q);           //line 2</pre>
<p><b>QUESTION 38</b></p> <p>What is output by the code to the right?</p> <p>A. 180</p> <p>B. 90</p> <p>C. 240</p> <p>D. 3</p> <p>E. 10</p>	<pre>System.out.println(30 &lt;&lt; 3);</pre>
<p><b>QUESTION 39</b></p> <p>What is output by the code to the right?</p> <p>A. agerm</p> <p>B. al</p> <p>C. mreg</p> <p>D. l</p> <p>E. mrega</p>	<pre>String x = "ImanamregalagermanamI"; String[] list = x.split("a"); out.println(list[3]);</pre>
<p><b>QUESTION 40</b></p> <p>What is the size of list after executing the code to the right?</p> <p>A. 8</p> <p>B. 4</p> <p>C. 7</p> <p>D. 6</p> <p>E. 3</p>	