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 the result of 111_8 minus 101_8 ?

A. 1_8 B. 10_8 C. 1001_2 D. 10_{11} E. 10_{10}

QUESTION 2

What is output by the code to the right?

A. 2.0 B. 8.0 C. 6.0 D. 8 E. 6

```
double x = 2;
int y = 4;
System.out.println(x * y);
```

QUESTION 3

What is output by the code to the right?

A. 11 B. 13 C. 10 D. 12 E. 14

```
int x=4;
for( int i =- 4; i < x; i+=2 )
   x += 1;
System.out.println(x);
```

QUESTION 4

What is output by the code to the right?

A. csrocks B. rocks C. cs
D. cscs E. csrockscs

```
String t = new String("csrocks");
String s = t;
s = s + t.substring(0,2);
System.out.print(s);
```

QUESTION 5

What is output by the code to the right?

A. 05 B. 5 C. 053 D. 485 E. 53

```
char[] a = new char[9];
System.out.println( a[0] + 5 );
```

QUESTION 6

What is output by the code to the right?

A. 5 B. 6
C. 5.0 D. 6.0
E. 4.5

```
System.out.println(Math.sqrt(25));
```

QUESTION 7

What is output by the code to the right?

A. UILCS
B. 65I
C. 65IL
D. 65ILCS
E. 65CS

```
Short t = 'A';
String s = ""+t;
switch (t){
  case 0: s += "U";
  case 65: s += "I";
  case 97: s += "L";
  default : s += "CS";
}
System.out.println(s);
```

QUESTION 8

What is output by the code to the right?

A. 15
B. 11
C. 12
D. 25
E. 2

```
System.out.print( 25/2 | 11 );
```

QUESTION 9

What is returned by the method call `show("kee")` ?

A. `0` B. `1` C. `2` D. `3` E. `4`

QUESTION 10

What is returned by the method call `show("xi")` ?

A. `0` B. `1` C. `2` D. `3` E. `4`

```
public static int show(String s)
{
  String w = "funkee muxikee";
  int c = 0, f = w.length();
  while(f>-1)
  {
      f = w.indexOf(s);
      w = w.substring(f+1);
      if(f > -1)
        c++;
  }
  return c;
}
```

QUESTION 11

What is output by the code to the right ?

A. `true true` B. `true false`
C. `false true` D. `true 0`
E. `false false`

```
String x = "Lost";
String y = new String("Lost");
out.print(x == y);
out.print(" ");
out.println(x.equals(y));
```

QUESTION 12

What is output by the code to the right ?

A. `8.24` B. `8.34` C. `8.35` D. `8.3` E. `8.4`

```
System.out.printf("%.2f",8.345);
```

QUESTION 13

What is returned by the method call `go(5,4)` ?

A. `5.0` B. `9.0`
C. `15.0` D. `10.0`
E. `12.0`

```
public static double go(int x, int y)
{
   if( x > y )
     return x * 2;
   if( x < y )
     return y * 3;
   return x + y;
}
```

QUESTION 14

What is output by the code to the right ?

A. `bcdadcb` B. `bdg`
C. `aaaaaaa` D. `adcb`
E. `bdggjlm`

```
char x = 97;
String s="";
int[] c = {1,2,3,0,3,2,1};
for(int i=0; i < c.length; i++)
{
  x += c[i];
  s += x;
}
System.out.println(s);
```

QUESTION 15

How many times will this loop iterate?

A. `5` B. `7`
C. `111` D. `3`
E. This loop will iterate forever as it will never terminate.

```
int i = 1000;
do
{
 i /= 4;
 i++;
}while(i > 0);
```

QUESTION 16

What is returned by `near(15)` ?

A. 12 B. 15 C. 16 D. 31 E. 32

QUESTION 17

What is returned by `near(33)` ?

A. 16 B. 32 C. 33 D. 63 E. 64

```
public static int near(int i)
{
   int x = ((i - 1) & i);

   return (x != 0) ?
             near(x) : i << 1;
}
```

QUESTION 18

What is output by the code to the right?

A. 0 B. 1 C. 2 D. 3 E. 5

```
int[][] arr = {{5,3,1},
               {3,2,9},
               {0,4,8}};

for(int i = 0; i < 3; i++)
{
   for(int k = 0; k < 3; k++)
   {
       arr[2-k][i] = arr[i][k];
   }
}
out.println(arr[2][1]);
```

QUESTION 19

What is the value of `m[5][5]` when the code to the right is executed ?

A. 1 B. 3 C. 12 D. 5 E. 9

```
int[][] m = new int [7][7];
for(int c=1; c<m[0].length; c+=1)
  for(int r=0; r<m.length; r+=1)
    m[r][c] = r / c;
```

QUESTION 20

What is output by the code to the right ?

A. 12

B. 9

C. 10

D. 7

E. 4

```
String a = "JOHNNY LOCHE";
Set it = new TreeSet();
for (char c : a.toCharArray())
  it.add(c);
System.out.println(it.size());
```

QUESTION 21

What is output by the code to the right ?

A. [16, 15, 8, 4, 42, 23]

B. [4, 15, 8, 16, 42, 23]

C. [16, 15, 4, 8, 42, 23]

D. [16, 15, 23, 4, 42, 8]

E. [16, 23, 8, 4, 42, 15]

```
ArrayList<Integer> list;
list = new ArrayList <Integer>();
list.add(4);
list.add(8);
list.add(15);
list.add(16);
list.add(23);
list.add(42);
Collections.reverse(list);
Collections.rotate(list, -2);
System.out.println(list);
```

QUESTION 22

What is output by the code to the right ?

A. `4`
B. `42`
C. `8`
D. `23`
E. `16`

```
int [] a = {4, 8, 15, 16, 23, 42};
Arrays.sort(a);
System.out.print(a[a.length-1]);
```

QUESTION 23

What is output by the code to the right?

A. `217.7up`
B. `upgo`
C. `217.7upgo`
D. `217.7`
E. `7.721`

```
Object[] x = {21,7.7,"up","go"};
String total = "";
for( Object y : x )
  total += y;
out.println(total);
```

QUESTION 24

What is returned by `freckles(100)`?

A. `89`
B. `90`
C. `91`
D. `111`
E. `112`

QUESTION 25

What is returned by `sawyer(100)`?

A. `89`
B. `90`
C. `112`
D. `111`
E. `91`

QUESTION 26

What can you say about methods `freckles` and `sawyer`?

A. freckles and sawyer have the same output for every input z.

B. freckles and sawyer have the same output for every input z if and only if z is greater than 100.

C. freckles and sawyer have the same output for every input z if and only if z is greater than 110.

D. freckles and sawyer have the same output for every input z if and only if z is greater than 111.

E. None of the above is true.

```
public static int freckles(int z)
{
   if(z>100)
     return z-10;
   return freckles(freckles(z+11));
}

public static int sawyer(int z)
{
   if(z>100)
      return z-10;
   return 91;
}
```

QUESTION 27

Which of the following methods is called when adding a new value to a `Set`?

A. `new()` B. `put()` C. `insert()` D. `add()` E. more than one of these

QUESTION 28

What is output by the code to the right ?

A. `12`
B. `18`
C. `9`
D. `6`
E. `3 3 3`

```
System.out.print( 3 + 3 * 3 );
```

QUESTION 29

What is output by the code to the right ?

A. `2` B. `5` C. `6` D. `3` E. `4`

```
String s="security system";
String[] t = s.split("[lost]");
System.out.print( t.length );
```

QUESTION 30

What is output by the code to the right ?

A. `[4, 15]`
B. `[8, 15]`
C. `[15, 16]`
D. `[4, 8]`
E. `[4, 16]`

```
Stack<Integer> s;
s = new Stack<Integer>();
s.push(4);
s.push(8);
s.pop();
s.push(15);
s.push(16);
s.pop();
s.peek();
out.println(s);
```

QUESTION 31

What are the smallest values of `r` and `c` that could be used to correctly create matrix `m` so that the code at right could execute without error?

A. `r=7, c=7` B. `r=5, c=4` C. `r=6, c=5`
D. `r=6, c=4` E. `r=7, c=6`

QUESTION 32

Assuming `r` and `c` have been correctly initialized, what is the output of the code segment?

A. `4 3` B. `0 2` C. `3 2` D. `0 0` E. `0 3`

QUESTION 33

Assuming `r` and `c` have been correctly initialized, which of the following is true of matrix `m` after the code at right is executed?

A. Only the first row is all zeros.
B. Only the first column is all zeros.
C. The last row is all zeros.
D. The last column is all zeros.
E. The first row and column are all zeros.

```
int [][] m = new int[r][c];
for(int i = 6; i >= 0; i--)
 for(int j = 0; j < i; j++)
   m[i][j] = i * j;
out.print(m[1][2] + " " + m[2][0]);
```

QUESTION 34

What is output by the code to the right ?

A. `3`
B. `6`
C. `12`
D. `24`
E. There is no output due to a syntax error.

```
double d = 10;
System.out.println(d >> 4 | 33);
```

QUESTION 35

What of the following statements would correctly fill **<*1>**?

```
SortedSet x = <*1>
```

A. `new HashSet();`

B. `new LinkedList();`

C. `new HashMap();`

D. `new TreeSet();`

E. more than one of these

QUESTION 36

What is output by the code to the right?

A. `true` B. `false`

C. `false true` D. `false false`

E. More than one of these.

```
boolean x = false, y = true;
boolean z = false;
z = !(!x || !y);
System.out.println(z);
```

QUESTION 37

What is output by the code to the right?

A. `2` B. `4` C. `6` D. `8` E. `10`

```
int n = 32, k = 1;
int res = 0;
do{
   if( n % (k++) == 0 )
     res+=2;
}while( k * k <= n );
out.println(res);
```

QUESTION 38

What is output by the code to the right?

A. `newellsimon`

B. `nEwElLsImOn`

C. `NeWeLlSiMoN`

D. `78e90e76l73i77o77`

E. `78e87e76l83i77o78`

```
String s1 = "newellsimon";
String s2 = "";
for(int i=0;i<s1.length();i++)
{
   char c = s1.charAt(i);
   if(i%2 == 0)
      s2 += c-'a'+'A';
   else
      s2 += c;
}
out.println(s2);
```

QUESTION 39

What is the output by the line marked `//line 1`?

A. `4` B. `8`

C. `15` D. `23`

E. `16`

QUESTION 40

What is the output by the line marked `//line 2`?

A. `4` B. `8`

C. `15` D. `23`

E. `16`

```
PriorityQueue <String> q;
q = new PriorityQueue();
q.add("4");
q.add("8");
q.add("15");
q.add("16");
out.println(q.remove());   //line 1
q.add("23");
q.add("42");
out.println(q.remove());   //line 2
```