Note: Correct responses are based on Java, J2sdk v 7.0, 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 $2A3_{11}$ plus 32_6 ?

A. 374_{10} B. 1010101011_2 C. 1011010111_2 D. 101110110_2 E. 11313_4

QUESTION 2

What is output by the code to the right?

A. 15 B. 12 C. 11 D. 10 E. 5

```
int a = 5;
int who = a + 10;
System.out.println(who);
```

QUESTION 3

What is output by the code to the right?

A. 27 B. 30 C. 25 D. 33 E. 36

```
int b = 9;
int c = 4;
c = b * c;
System.out.println(c);
```

QUESTION 4

What is output by the code to the right?

A. UIL B. uilr

C. uils D. uilw

E. There is no output due to a syntax error.

```
String d = "uildistricthiswaycomes";
out.print(d.substring(0,3)+ d.charAt(7));
```

QUESTION 5

What is output by the code to the right?

A. 5 B. 4

C. 3 D. 2

E. 1

```
int[] array = {0, 2, 1, 4, 3};
for( Integer it : array )
  array[it]++;
System.out.println(array[2]);
```

QUESTION 6

What is output by the code to the right?

A. 30

B. 27

C. -27

D. -30

E. There is no output due to a runtime error.

```
int e = 3;
double f = 10;
e -= f * e;
System.out.print( (int)e );
```

QUESTION 7

What is output by the code to the right?

A. false

B. 1

C. true

D. 0

E. There is no output due to a runtime error.

```
boolean g = true;
boolean i = false;
boolean h = g && (!i ^ g);
System.out.println(h);
```

QUESTION 8

What is output by the code to the right?

A. `1234`

B. `12`

C. `23`

D. `24`

E. There is no output due to a syntax error.

```
double j = 9.4;
Double k = (int)9.5;
if( j > k )
  System.out.print("1");
if( j < k )
  System.out.print("2");
if( j == k )
  System.out.print("3");
System.out.println("4");
```

QUESTION 9

Which of the following could replace **<*1>** in the client code at right?

A. `new BigKid( );`

B. `new BigKid( "nancy", 305.00 );`

C. `new WilE( "william", 900.00 );`

D. A and B only

E. A, B, and C

QUESTION 10

Assuming that **<*1>** is filled correctly, which of the following could fill blank **<*2>** in the client code at right?

A. `System.out.println( c.name );`

B. `System.out.println( c.howFast() );`

C. `System.out.println( c.fast );`

D. A and B only

E. A, B, and C

```
public abstract class BigKid
{
  public abstract double howFast();
}

public class WilE extends BigKid
{
   private String name;
   private double fast;

   public WilE(String n, double f)
   {
      name = n;
      fast = f;
   }

   public double howFast()
   {
     //implementation not shown
   }
}

//////////////////////////////////////////
//client code
BigKid c = <*1>
<*2>
```

QUESTION 11

What is output by the code to the right?

A. `6`

B. `5`

C. `4`

D. `3`

E. `2`

```
System.out.println( 3 * 10 % 4);
```

QUESTION 12

What is output by the code to the right?

A. `ap`
B. `ap81`
C. `ap9`
D. `huh81`
E. `huh9`

```
String huh = "ap";
System.out.println( huh + "8" + "1" );
```

QUESTION 13

What is output by the client code to the right?

A. `\b\\u\\b`
B. `bub`
C. `\\u`
D. `b\\u\b`
E. There is no output due to a runtime error.

```
System.out.println("\\b\\\\u\\\\b");
```

QUESTION 14

What is the purpose of method `smack`?

A. The method returns a list containing the reversed values of c.
B. The method returns a list containing the sorted values of c.
C. The method returns a list containing the odd values of c.
D. The method returns a list containing the even values of c.
E. The method returns a list containing the values of c in the original order sent in.

```
public static List smack(Collection c)
{
    Stack s = new Stack();
    s.addAll(c);
    List ret = new ArrayList();
    while(!s.isEmpty())
        ret.add(s.pop());
    return ret;
}
```

QUESTION 15

What is output by the code to the right?

A. `[15, 36, 36, 36, 50]`
B. `[15, 36, 50, 36, 36]`
C. `[15, 50, 36, 36, 36]`
D. `[15, 36, 36, 50, 36]`
E. There is no output due to a runtime error.

```
Queue stuff = new PriorityQueue();
stuff.add(21);
stuff.add(50);
stuff.add(36);
stuff.add(36);
stuff.remove(21);
stuff.add(15);
stuff.add(36);
System.out.println( stuff );
```

QUESTION 16

What is output by the code to the right?

A. `hope`
B. `nop`
C. `epoh`
D. `ope`
E. There is no output due to a syntax error.

```
Object nub = new Object("hope");
out.println(nub.toString());
```

QUESTION 17

What is output by the code to the right?

A. `75`
B. `78`
C. `71`
D. `68`
E. `63`

```
int ans = 0;
for( int i = -9; i < 20; i+=2 )
  ans += i;
System.out.println(ans);
```

QUESTION 18

Which of the following reserved words can be used to determine if an object is of a particular class type?

A. `checktype` B. `getclass` C. `istype` D. `whodat` E. `instanceof`

QUESTION 19

What is the output by the code to the right?

A. `20` B. `25`

C. `22` D. `19`

E. `12`

```
int box = 0;
int[][] mat = new int[8][8];
for(int r = 0; r < mat.length; r=r+1)
  for(int cc = r; cc <mat[r].length; cc+=1){
     box++;
     mat[r][cc] = box;
  }
System.out.print(mat[3][3]);
```

QUESTION 20

What is the output by the code to the right?

A. `6pl` B. `6ng`

C. `7pl` D. `7ng`

E. `6tt`

```
String line = "splittingisfunforeveryone";
String[] chunks = line.split("[^[is]]");
System.out.print(chunks.length);
System.out.println(chunks[3]);
```

QUESTION 21

Which of the following could replace **`<*1>`** in the code at right so that `words` would refer to a string array containing ***only*** the words from `stuff`?

A. `stuff.split("\\s*");`

B. `stuff.split("\\s+");`

C. `stuff.split("\\w+");`

D. `stuff.split("\\d+");`

E. `stuff.split("\\S*");`

QUESTION 22

Assuming that **`<*1>`** is filled correctly, what is the output by the line marked `//line 1`?

A. `5` B. `4` C. `8` D. `6` E. `7`

QUESTION 23

Assuming that **`<*1>`** is filled correctly, what is the output by the line marked `//line 2`?

A. `act` B. `boty`

C. `dgo` D. `bmot`

E. `ab`

QUESTION 24

Assuming that **`<*1>`** is filled correctly, what is the output by the line marked `//line 3`?

A. `act` B. `boty`

C. `dgo` D. `bmot`

E. `ab`

```
String stuff = "dog cat booty funny";
stuff += "salad bottom abba";

String[] words = <*1>

ArrayList<String> list;
list = new ArrayList<String>();

for(int i=0; i<words.length; i++)
{
  char[] cRay = words[i].toCharArray();
  Arrays.sort(cRay);
  String s = "";
  for( char c : cRay)
     if(s.indexOf(c)==-1)
        s+=c;
  list.add(s);
}

System.out.println(list.size());  //line 1

Collections.sort(list);

System.out.println( list.get(0) );//line 2
System.out.println( list.get(5) );//line 3
```

QUESTION 25

What is the output by the code to the right?

A. 23
B. 26
C. 20
D. 22
E. 27

```
int count = 0;
for(int i = 0; i < 8; i++)
  for(int j = i; j >= 0; j--){
     if( (j * i) % 2 == 1)
        continue;
     count++;
  }
System.out.print(count);
```

QUESTION 26

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

A. 8 3
B. 8 8
C. 3 3
D. 3 8
E. 8

QUESTION 27

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

A. 1 8 3
B. 1 3 8
C. 1 3 3
D. 1 8 8
E. 1 3

QUESTION 28

What is the output by the line marked `//line 3`?

A. 3.0
B. 8.0
C. 0.0
D. 1.0
E. 6.0

```
public class Car {
   private int it, thing;

   public Car() {
      it=thing=3;
   }
   public void fun() {
      it=8;
   }
   public double go() {
      return it;
   }
   public void back() {
      fun();
   }
   public String toString() {
      return it + " " + thing;
   }
}

public class MiniVan extends Car {
   private int it;

   public MiniVan() {
      it=1;
   }
   public void fun() {
      it=6;
   }
   public double go() {
      return it;
   }
   public void back() {
      super.back();
   }
   public String toString() {
      return it + " " + super.toString();
   }
}

////////////////////////////////////
//client code
Car one = new Car();
one.back();
out.println(one);                  // line 1
one = new MiniVan();
out.println(one);                  // line 2
one.fun();
one.back();
out.println(one.go());             // line 3
```

QUESTION 29

Which of the following constructors could ***not*** be placed in class `You`?

A. `public You( List<Integer> ints) { }`

B. `public You( int[] [][]ints) { }`

C. `public You( Set<Float> reals ) { }`

D. `public You( List[] ints) { }`

E. more than uno of these

QUESTION 30

What is the output by the call `new You(null)`?

A. `uno`

B. `dos`

C. `tres`

D. `quatro`

E. more than uno of these

QUESTION 31

What is the output by the call `new You(9.3)`?

A. `uno`

B. `dos`

C. `tres`

D. `quatro`

E. more than uno of these

```
public class You
{
   public You( Object obj ){
     System.out.println("uno");
   }

   public You( double dbl ){
     System.out.println("dos");
   }

   public You( String[] words ){
     System.out.println("tres");
   }

   public You( byte b ){
     System.out.println("quatro");
   }
}
```

QUESTION 32

What is returned by the method call `ben(5)`?

A. `7`

B. `6`

C. `4`

D. `11`

E. `9`

QUESTION 33

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

A. `7`

B. `6`

C. `4`

D. `11`

E. `9`

```
public static int ben(int x)
{
  if( x == 0 ) return x/2;
  if( x % 2 > 0 )
     return ben( x - 1 ) + x;
  else
     return ben( x - 2 ) + 1;
}
```

QUESTION 34

What is returned by the call to `fun()` below?

```
int[] a = {5, 7, 3, 9};

fun(a, 2);
```

A. `[3, 5, 9, 7]`
B. `[5, 3, 7, 9]`
C. `[9, 5, 3, 7]`
D. `[7, 9, 3, 5]`
E. `[5, 7, 3, 9]`

QUESTION 35

What is returned by the call to `fun()` below?

```
int[] a = {1,2,3,4,5,6,7,8,9,10};

fun(a, 5);
```

A. `[7, 9, 1, 3, 5, 10, 8, 6, 4, 2]`
B. `[9, 8, 6, 3, 1, 10, 7, 5, 4, 2]`
C. `[2, 7, 5, 4, 1, 10, 8, 6, 3, 9]`
D. `[9, 7, 5, 3, 1, 10, 8, 6, 4, 2]`
E. `[1, 7, 5, 3, 9, 2, 8, 6, 4, 10]`

QUESTION 36

What is returned by the call to `fun()` below?

```
int[] a = {2,5,1,6,9,3,4};

fun(a, 1);
```

A. `[2, 5, 1, 6, 9, 3, 4]`
B. `[6, 1, 5, 2, 9, 3, 4]`
C. `[9, 5, 1, 6, 2, 3, 4]`
D. `[2, 3, 4, 6, 9, 5, 1]`
E. `[4, 6, 1, 5, 9, 3, 2]`

```
public static int[] fun(int[] a, int k)
{
  int n = a.length;
  int[] r = new int[a.length];
  int ps = n / k;
  int idx = 0;
  int pos = 0;

  for(int i = 0; i < a.length; i++)
  {
    r[i] = a[n - ps * (idx+1) + pos];
    idx++;
    if(idx == k) {
      pos++;
      idx=0;
    }
  }

  return r;
}
```

QUESTION 37

What is output by the code to the right?

A. `false`
B. `1`
C. `true`
D. `0`
E. There is no output due to a runtime error.

```
boolean g = true;
boolean i = false;
boolean h = !(g && !i ^ g | i);
System.out.println(h);
```

QUESTION 38

If N equals `oList.length` , what is the Big O of method `why` when `c` is an `ArrayList` and when `c` is a `HashSet`? Choose the most restrictive set of correct answers.

	ArrayList	HashSet
A.	O(1)	$O(N*Log_2N)$
B.	O(N)	O(N)
C.	$O(N^2)$	$O(N*Log_2N)$
D.	$O(Log_2N)$	O(N)
E.	O(N)	O(1)

```
public static void why(
    Collection<Object> c, Object[] oList)
{
  for(Object obj : oList)
  {
    c.add(obj);
  }
}
```

QUESTION 39

What is output by the code to the right?

A. `7.5weird`

B. `7.5howdy`

C. `7.5`

D. `7.5why`

E. There is no output due to a syntax error in the code.

```
try{
  System.out.printf("%.1f", 15/2.0);
}
catch( Exception e){
  System.out.print("weird");
}
catch( ArithmeticException e){
  System.out.print("why");
}
finally{
  System.out.print("howdy");
}
```

QUESTION 40

What is output by the code to the right?

A. `7`

B. `10`

C. `8`

D. `9`

E. There is no output due to an infinite loop.

```
int bit = 200;
int cntr = 0;
while(bit > 1)
{
  bit = bit >> 1;
  cntr++;
}
System.out.println(cntr);
```