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 sum of $2A3_{11}$ and 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. 8 B. 7 C. 11 D. 10 E. 9

```
int a = 5, who = a + 3;
a++;
System.out.println(who);
```

QUESTION 3

What is output by the code to the right?

A. 27 B. 30 C. 25 D. 33 E. 39

```
int b = 9, c = 3;
c = ++b * c++;
System.out.println(c);
```

QUESTION 4

What is output by the code to the right?

A. ab B. bc

C. 195 D. a98

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

```
String d = "abcdistricthiswaycomes";
out.print(d.substring(0,1)+ d.charAt(1));
```

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

QUESTION 6

What is output by the code to the right?

A. 1 B. 2 C. 0 D. -3

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

```
int e = 3;
double f = 7;
e -= f * e / f;
System.out.print( (int)e );
```

QUESTION 7

What is output by the code to the right?

A. true B. 1

C. false D. 0

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

```
boolean g = true;
boolean i = false;
boolean h = g && (!i ^ !g || g ^ i);
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 = 11.5;
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 Creature();`

B. `new Creature("alice",305.00);`

C. `new Sasquatch("jimmy",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.howMean());`

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

D. A and B only

E. A, B, and C

```
public abstract class Creature
{
  public abstract double howMean();
}

public class Sasquatch extends Creature
{
   private String name;
   private double mean;

   public Sasquatch(String n, double m)
   {
      name = n;
      mean = m;
   }

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

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

QUESTION 11

What is output by the code to the right?

A. `76`

B. `88`

C. `78`

D. `[]`

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

```
Queue stuff = new PriorityQueue();
stuff.add(78);
stuff.add(88);
stuff.add(76);
stuff.add(88);
stuff.remove(88);
stuff.remove(0);
System.out.println(stuff.peek());
```

QUESTION 12

What is output by the code to the right?

A. `ap`

B. `ap8.1`

C. `ap8.1cs`

D. `8.1cs`

E. `apcs8.1`

```
String huh = "ap";
huh += 8.1;
huh += "cs";
System.out.println( huh );
```

QUESTION 13

What is output by the client code to the right?

A. `\\b\\u\b`

B. `bub`

C. `\\u`

D. `b\\u`

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

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

QUESTION 14

What is the purpose of method `doIt`?

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 doIt(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. `fun`
B. `funcs`
C. `csfun`
D. `cs`
E. There is no output due to a syntax error.

```
String uil = "f-u-n-c-s";
uil = uil.replaceAll("\\-","");
char[] uilRay = uil.toCharArray();
String uilString;
uilString = new String(uilRay);
System.out.println(uilString);
```

QUESTION 16

What is output by the code to the right?

A. `ruhrow`
B. `ruh`
C. `row`
D. `worhur`
E. There is no output due to a syntax error.

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

QUESTION 17

What is output by the code to the right?

A. `55`
B. `51`
C. `43`
D. `39`
E. `63`

```
int much = 0;
for(int g1 = 0; g1 < 5; g1++){
  much++;
  for(int g2 = 0; g2 <= g1; g2++){
     much++;
     for(int g3 = 0; g3<=g2; g3++)
     much++;
  }
}
System.out.println(much);
```

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. `5`
B. `7`
C. `8`
D. `11`
E. `12`

```
int noom = 0;
int[][] mat = new int[6][6];
for(int r = 0; r < mat.length; r=r+1)
   for(int cc = r; cc <6; cc+=2){
      mat[r][cc] = noom;
      noom++;
   }
System.out.print(mat[3][3]);
```

QUESTION 20

What is the output by the code to the right?

A. `7ldmedi`
B. `7`
C. `7el`
D. `7at`
E. `6el`

```
String line = "funkycoldmedinatonelock";
String[] chunks = line.split("[^[on]]");
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. `15`
B. `18`
C. `20`
D. `12`
E. `17`

```
int count = 0;
for(int i = 0; i < 10; i++){
  for(int j = i; j >= 0; j--){
     if( (i * j) % 2 == 0)
        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 King
{
   private int it, thing;

   public King() {
      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 Subject extends King
{
   private int it;

   public Subject() {
      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
King one = new King();
one.back();
out.println(one);              // line 1
one = new Subject();
out.println(one);              // line 2
one.fun();
one.back();
out.println(one.go());         // line 3
```

QUESTION 29

Which of the following constructors could 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 one of these

QUESTION 30

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

A. `one`

B. `two`

C. `three`

D. `four`

E. more than one of these

QUESTION 31

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

A. `one`

B. `two`

C. `three`

D. `four`

E. more than one of these

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

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

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

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

QUESTION 32

What is returned by the method call `fancy(7)`?

A. `17`

B. `14`

C. `13`

D. `11`

E. `9`

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

QUESTION 33

What is output by the code to the right?

A. `6`

B. `-6`

C. `5`

D. `-5`

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

```
String first = "808dogs";
String second = "202cats";
out.println(first.compareTo(second));
```

QUESTION 34

Which of the following could replace **<*1>** in the code to the right so that the `Monster` constructor will increment the count variable by one each time it is called.

A. `count++;`

B. `count = count + 1;`

C. `++count;`

D. `count+=1;`

E. More than one of these.

QUESTION 35

Which of the following could replace **<*2>** in the code to the right so that the `BigMonster` constructor will correctly call the `Monster` constructor.

A. `Monster(n);`

B. `Monster();`

C. `super(n);`

D. `super();`

E. `super(n,s);`

QUESTION 36

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

A. `meany`

B. `chuck`

C. `sully`

D. `dude`

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

QUESTION 37

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

A. `1`

B. `2`

C. `3`

D. `4`

E. `5`

```
public abstract class Monster{
   private static int count = 0;
   private String name;

   public Monster(String n){
     name = n;
     <*1>
   }

   public String getName(){
     return name;
   }

   public int getCount(){
     return count;
   }

   public void setCount(int c){
     count = c;
   }
}


public class BigMonster extends Monster{
   private int size;

   public BigMonster(String n, int s){
     <*2>
     size = s;
   }

   public String toString(){
     return size + getName();
   }
}

public class Sullivan extends BigMonster{
   private Color color;

   public Sullivan(String n, int s, Color c){
     super(n, s);
     color = c;
   }

   public String toString(){
     return color + super.toString();
   }
}

////////////////////////////////////
//client code
Monster m = new BigMonster("meany",78);
Monster b = new BigMonster("chuck", 19);
b = new Sullivan("sully", 9, Color.RED);
Monster r = new BigMonster("dude", 33);
r = new Sullivan("nancy", 99, Color.BLUE);

System.out.println(b.getName());      //line 1
System.out.println(r.getCount());     //line 2
```

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(1)
C.	$O(N^2)$	$O(N*Log_2N)$
D.	$O(Log_2N)$	O(N)
E.	O(N)	O(N)

```
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. `12.8weird`

B. `12.8howdy`

C. `weirdhowdy`

D. `howdy`

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

```
try{
  System.out.printf("%.1f", 15/4);
}
catch( Exception e){
  System.out.print("weird");
}
finally{
  System.out.print("howdy");
}
```

QUESTION 40

What is output by the code to the right?

A. `10`

B. `11`

C. `8`

D. `9`

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

```
int bit = 256;
int cntr = 0;
while(bit > -1)
{
  bit = bit >> 1;
  cntr++;
}
System.out.println(cntr);
```