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 1111_2 plus 1001_2 ?

A. 10010_2 B. 11010_2 C. 10110_2 D. 25_{10} E. $1B_{13}$

QUESTION 2

What is output by the code to the right?

A. .3   B. 0

C. 1   D. 1.3

E. 1.2

```
double a = 10.3;
a = a % 3;
System.out.printf( "%.2f" , a );
```

QUESTION 3

What is output by the code to the right?

A. 1   B. 4

C. 10   D. 8

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

```
Integer b = 2;
b *= 2;
System.out.println(b);
```

QUESTION 4

What is output by the code to the right?

A. 543   B. 5432

C. 432   D. 54321

E. 12

```
for(int c=5; c>0; --c)
    System.out.print(c);
```

QUESTION 5

What is output by the code to the right?

A. 10   B. -1

C. 3   D. 1

E. 8

```
String d = "ffantasy ffootball";
System.out.print(d.lastIndexOf('f'));
```

QUESTION 6

What is output by the code to the right?

A. 3   B. 5

C. 12   D. 15

E. null

```
double[] wi = new double[ 6*2 ];
System.out.println( wi.length );
```

QUESTION 7

What is output by the code to the right?

A. yes   B. no

C. yikes   D. true

E. false

```
boolean a = false, b = true, c = false;
a = b && c || b && !a;
System.out.println( a==true );
```

QUESTION 8

Which of the following answer choices is equivalent to the code segment provided at right?   `!( x && y)`

A. `!(x || y)`   B. `!(x ^ y)`   C. `!x || !y`   D. `!x && !y`   E. `!x ^ !y`

QUESTION 9

Which of the following replaces **<*1>** in the code to the right to correctly refer daddy to a new instance of Gopher?

A. new Gopher();

B. new Gopher(3);

C. new Object();

D. A and B only

E. A, B, and C

```
public class Gopher
{
   private int age;

   public Gopher(int age)
   {
      this.age = age;
   }
}

/////////////////////////////////
//client code
Object daddy = <*1>
```

QUESTION 10

What is output by the code to the right?

A. -1   B. 17

C. 1   D. 8

E. 5

```
System.out.println(10 ^ 7 | -5);
```

QUESTION 11

What is output by the code to the right?

A. 5   B. 6.0

C. 5.0   D. 6

E. 5.5

```
System.out.println(Math.floor(6.43));
```

QUESTION 12

What is output by the code to the right?

A. 0042   B. 00d2

C. 2000   D. 0002

E. 2200

```
System.out.printf("%04d",2);
```

QUESTION 13

What is output by the code to the right?

A. 3   B. 4

C. 6   D. 5

E. 9

```
int[][] m = {{1,2,1,2,3},
             {4,5,6,7},
             {1,3,4,5,3,2}};
m[1] = m[0];
m[1] = new int[9];
System.out.println( m[0].length );
```

QUESTION 14

What is output by the code to the right?

A. 65   B. 73

C. 72   D. 77

E. 84

```
int ans=0;
for(int i=2; i<24; i=i+4){
   ans += i;
}
System.out.println(ans);
```

QUESTION 15

What is returned by the method call doIt(-1) ?

A. 20   B. 12   C. 16   D. 25   E. 9

```
public static int doIt(int x){
  x+=4;
  return x * x;
}
```

QUESTION 16	
| What is output by the code to the right?<br><br>A. 13    B. 517    C. 2317    D. 238<br><br>E. There is no output due to a syntax error. | ```java
System.out.print( 2 + "3" + 1 + 7 );
``` |

QUESTION 17	
| What is output by the code to the right?<br><br>A. 3               B. 3.824<br><br>C. 3.825       D. 3.8<br><br>E. There is no output due to a syntax error. | ```java
double huh = 3.82_45F;
System.out.printf("%.3f", huh );
``` |

QUESTION 18	
| What is output by the code to the right?<br><br>A. false   B. true   C. stop   D. 0       E. 1 | ```java
boolean k = false, m = true;
out.println( m && k || m && !k && m);
``` |

QUESTION 19	
| What is output by the code to the right?<br><br>A. 40    B. 10    C. 20    D. 35<br><br>E. There is no output due to a runtime error. | ```java
ArrayList<Integer> n;
n = new ArrayList<Integer>();
n.add(5);
n.add(null);
n.add(7);
int ans = 1;
for(int fun : n)
  ans = ans + fun;
System.out.println(ans);
``` |

QUESTION 20	
| What is output by the code to the right?<br><br>A. 2.5    B. 3    C. 3.0    D. 2.25    E. 2.0 | ```java
double dbl = 7 / 3;
System.out.println(dbl);
``` |

QUESTION 21	
| What is output by the code to the right?<br><br>A. 10.5    B. 11    C. 11.0    D. 11.5<br><br>E. There is no output due to an infinite loop. | ```java
double pig = 0.0;
do{
  if( pig%2 == 1 )
    continue;
  else
    pig += 3.0;
}while( pig < 20.0 );
System.out.println(pig);
``` |

QUESTION 22	
| What is returned by the method call witch( -5 ) ?<br><br>A. -1    B. 2    C. 3    D. 4    E. 5 | ```java
public static int witch(int x)
{
  if(x>-5 && x<=12)
    return x-5;
  else if(x>=12 && x<=23)
    return x-6;
  else if(x>=23 && x<=35)
    return x-7;
  return -1;
}
``` |
| **QUESTION 23**

What is returned by the method call witch(17) ?

A. 15   B. 11   C. 13   D. 20   E. -1 | |

QUESTION 24

Which of the following replaces **<*1>** in the `Truck` code to the right so that method `getValue` will return the `value`?

A. `v`

B. `Truck`

C. `Truck`

D. `getValue()`

E. `value`

QUESTION 25

Which of the following replaces **<*2>** in the `Fleet` code to the right so that method `getValues` will run without error and return the total value of all Trucks in the fleet?

A. `for(int it : group)`

B. `for(Truck it : group)`

C. `for(Trucks it : Truck)`

D. `for(c Trucks : Truck)`

E. `for(Truck : Trucks)`

QUESTION 26

Assuming all blanks have been filled correctly, what is output by the line marked `//1` in the client code to the right?

A. `126.0`   B. `120.5`

C. `116.0`   D. `130.5`

E. `128.6`

QUESTION 27

What is output by the line marked `//1` in the code to the right?

A. `35`   B. `38`   C. `37`   D. `39`

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

QUESTION 28

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

A. `17`   B. `18`   C. `20`   D. `19`

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

```java
public class Truck
{
    private double value;
    public Truck(double v){
        value = v;
    }
    public double getValue(){
        return <*1>;
    }
}

public class Fleet
{
    private Truck[] group;

    public Fleet(int size){
        group = new Truck[size];
    }
    public void add(int i, Truck c){
        group[i]=c;
    }
    public double getValues(){
        double val = 0.0;
        <*2>
        val += it.getValue();
        return val;
    }
}

//////////////////////////////////////
//client code
Fleet hertz = new Fleet(4);
hertz.add(0, new Truck(40.5));
hertz.add(1, new Truck(55.5));
hertz.add(2, new Truck(20.0));
hertz.add(3, new Truck(10.0));
out.println( hertz.getValues() );  //1
```

```java
ArrayList<Integer> things;
things = new ArrayList<Integer>();

for(int i=1; i<40; i++)
    things.add(i);

out.println(things.size()); //1

int j = things.size()-1;
while(j>=0)
{
    if(things.get(j)%2==0)
        things.remove(j);
    j--;
}
out.println(things.size()); //2
```

QUESTION 29

What is returned by the method call `boo(6)` ?

A. 51   B. 91   C. 57   D. 61   E. 81

QUESTION 30

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

A. 13   B. 9   C. 10   D. 11   E. 14

```
public static int boo(int x)
{
  if( x > 0 )
    return 2 + boo(x-2) + boo(x-1);
  return 1;
}
```

QUESTION 31

What is output by the code to the right?

A. 96   B. 48   C. 32   D. 16   E. 64

```
System.out.println( 2 << 4 );
```

QUESTION 32

What type of tree traversal is shown by the code to the right?

A. in-order traversal   B. post-order traversal

C. pre-order traversal   D. reverse-order traversal

E. level-order traversal

```
public void print(TreeNode tree)
{
   if(tree != null)
   {
      print(tree.getLeft());
      out.println(tree.getValue());
      print(tree.getRight());
   }
}
```

QUESTION 33

What is output by the line marked `//1` in the code to the right?

A. 5.8

B. 5.2

C. 2.4

D. null

E. 7.4

```
Map<String, Double> map;
map = new TreeMap<String, Double>();
```

QUESTION 34

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

A. 5.8

B. 5.2

C. 7.4

D. null

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

```
map.put("bog", 1.3);
map.put("hog", 5.8);
map.put("cat", 2.4);
map.put("rat", 5.9);
map.put("hog", 5.2);
map.put("cat", 7.4);


out.println( map.get("hog") );        //1

out.println( map.get("cat") );        //2

Collection vals = map.values();
out.println( vals );                  //3
```

QUESTION 35

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

A. [1.3, 7.4, 5.2, 5.9]

B. [1.3, 5.2, 7.4, 5.9]

C. [1.3, 7.4, 2.4, 5.2]

D. [1.3, 7.4, 5.9, 5.2]

E. [1.3, 5.8, 7.4]

QUESTION 36

Which of the following replaces **<*1>** in the test code to the right so that the client code will run the method test without error?

A. `i < 9`

B. `i < ray.length`

C. `i < ray.length+1`

D. `i < ray.size-1`

E. `i < ray.length-1`

QUESTION 37

Assuming **<*1>** has been filled correctly, what is output by the line marked `//1` in the client code to the right?

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

```
public class Ghoul
{
  public static int rar( int[] ray )
  {
    int cnt = 0;
    for(int i=0;  <*1> ; i++)
    {
      if(ray[i] == ray[i+1])
        cnt++;
    }
    return cnt;
  }
}

/////////////////////////////////////
//client code
int[] stuff = {3,3,3,6,3,0,3,2,3,3};
out.println( Ghoul.rar(stuff) );     //1
```

QUESTION 38

What is output by the code to the right?

A. `[one, 123, BAD]`

B. `[123, BAD, one]`

C. `[BAD, one, 123]`

D. `[BAD, 123, one]`

E. There is no output due to a null pointer exception.

```
Set<String> cat;
cat = new TreeSet<String>();
cat.add("one");
cat.add("123");
cat.add("BAD");
System.out.println(cat);
```

QUESTION 39

What is output by the line marked `//1` in the code to the right?

A. `0`

B. `1`

C. `true`

D. `false`

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

```
String x = "455-33-9876";
String y = "22-333-2245";
String ck = "^\\d{3}-\\d{2}-\\d{4}$";

out.println( x.matches( ck ) );        //1

out.println( y.matches( ck ) );        //2
```

QUESTION 40

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

A. `0`

B. `1`

C. `true`

D. `false`

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