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

$1101_2 + 1101_2 = ?$

A. 10010_2 B. 11000_2 C. 10110_2 D. 25_{10} E. 20_{13}

QUESTION 2

What is output by the code to the right?

A. 8   B. 9   C. 10   D. 11   E. 12

```
int a = 10;
a = a + -3 + 4;
System.out.println(a);
```

QUESTION 3

What is output by the code to the right?

A. 2.2   B. 3   C. 3.2   D. 2

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

```
Integer b = 4;
b += 2.1;
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>2; --c)
    System.out.print(c);
```

QUESTION 5

What is output by the code to the right?

A. 0   B. -1   C. 3   D. 7   E. 16

```
String d = "ben sam bens am ben";
System.out.print(d.lastIndexOf('b'));
```

QUESTION 6

What is output by the code to the right?

A. 3   B. 5   C. 12   D. 15   E. null

```
double[] eRay = new double[3*5];
System.out.println(eRay.length);
```

QUESTION 7

What is output by the code to the right?

A. yes   B. no   C. eBoola   D. true   E. false

```
boolean bOne = false, bTwo = true;
boolean bThree = false;
bOne = bTwo && bThree || bTwo && ! bOne;
System.out.println(bOne==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 papa to a new instance of Smurf?

A. `new Smurf();`

B. `new Smurf(3);`

C. `new Object();`

D. A and B only

E. A, B, and C

```
public class Smurf
{
   private int howOld;
   public Smurf(int howOld)
   {
      this.howOld = howOld;
   }
}

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

QUESTION 10

What is output by the code to the right?

A. 10   B. 17   C. 13   D. 8   E. 12

```java
System.out.println(10 ^ 7 | 1);
```

QUESTION 11

What is output by the code to the right?

A. 5   B. 6.0   C. 5.0   D. 6   E. 5.5

```java
System.out.println(Math.floor(5.4));
```

QUESTION 12

What is output by the code to the right?

A. 0422   B. 0d22   C. 2200   D. 0022   E. 22200

```java
System.out.printf("%04d",22);
```

QUESTION 13

What is output by the code to the right?

A. 3   B. 2   C. 6   D. 1   E. 9

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

QUESTION 14

What is output by the code to the right?

A. 65   B. 70   C. 67   D. 77   E. 84

```java
int iSum=0;
for(int i=3; i<27; i=i+5){
   iSum += i;
}
System.out.println(iSum);
```

QUESTION 15

What is returned by the method call `doIt(4)` ?

A. 20   B. 12   C. 16   D. 30   E. 9

```java
public static int doIt(int x){
  x++;
  return x * x – x;
}
```

QUESTION 16

What is output by the code to the right?

A. 13   B. 517   C. 2317   D. 238

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?

A. 7   B. 1   C. 9   D. 0   E. 2

```java
System.out.println(7 % 9);
```

QUESTION 18

What is output by the code to the right?

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?

A. 40   B. 10   C. 20   D. 35

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

```java
ArrayList<Integer> n;
n = new ArrayList<Integer>();
n.add(new Integer("11"));
n.add(null);
n.add(3);
int ans = 1;
for(Integer fun : n)
  ans = ans + fun.intValue();
System.out.println(ans);
```

QUESTION 20
 	
 What is output by the code to the right?
 	
 A. 2.5　　B. 3　　C. 3.0　　D. 2.25　　E. 2.0
	``java
	double dbl = 7 / Math.round(3.1);
	System.out.println(dbl);
	``

QUESTION 21
 	
 What is output by the code to the right?
 	
 A. 10.5　　B. 11　　C. 11.0　　D. 11.5
 	
 E. There is no output due to an infinite loop.
	``java
	double pNum = 1.0;
	do{
	  if(pNum==7.0)
	    continue;
	  pNum += 3.0;
	}while(pNum < 20.0);
	System.out.println(pNum);
	``

QUESTION 22
 	
 What is returned by the method call `what(10)` ?
 	
 A. -1　　B. 2　　C. 3　　D. 4　　E. 5
 	
 QUESTION 23
 	
 What is returned by the method call `what(20)` ?
 	
 A. 15　　B. 14　　C. 13　　D. 20　　E. -1
	``java
	public static int what(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;
	  else
	    return -1;
	}
	``

QUESTION 24
 	
 Which of the following replaces **`<*1>`** in the `Car` code to the right so that method `getCost` will return the `cost`?
 	
 A. c
 B. car
 C. Car
 D. getCost()
 E. cost
 	
 QUESTION 25
 	
 Which of the following replaces **`<*2>`** in the `Fleet` code to the right so that method `getCost` will run without error and return the total cost of all cars in the fleet?
 	
 A. for(int car : cars)
 B. for(Car car : cars)
 C. for(cars car : Car)
 D. for(c cars : Car)
 E. for(Car : cars)
 	
 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. 165.0　　　　B. 190.5
 C. 166.0　　　　D. 170.0
 E. 3406.6
	``java
	public class Car
	{
	   private double cost;
	   public Car(double c){
	     cost = c;
	   }
	   public double getCost(){
	     return <*1>;
	   }
	}
	
	public class Fleet{
	   private Car[] cars;
	
	   public Fleet(int size){
	     cars = new Car[size];
	   }
	   public void add(int i, Car c){
	     cars[i]=c;
	   }
	   public double getCost(){
	     double cost = 0.0;
	       <*2>
	       cost = cost + car.getCost();
	     return cost;
	   }
	}
	
	//////////////////////////////////////
	//client code
	Fleet hertz = new Fleet(3);
	hertz.add(0, new Car(40.5));
	hertz.add(1, new Car(75.5));
	hertz.add(2, new Car(50.0));
	System.out.println(hertz.getCost()); //1
	``

QUESTION 27

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

A. 15   B. 18   C. 17   D. 19

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

```
ArrayList<Integer> intList;
intList = new ArrayList<Integer>();

for(int i=4; i<60; i=i+3)
   intList.add(i);

out.println(intList.size()); //1
```

QUESTION 28

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

A. 7   B. 8   C. 10   D. 9

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

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

QUESTION 29

What is returned by the method call wow(7) ?

A. 5   B. 9   C. 10   D. 6   E. 8

```
public static int wow(int x)
{
  if(x>0)
    return x/3 + wow(x-2);
  else
    return 1;
}
```

QUESTION 30

What is returned by the method call wow(11) ?

A. 5   B. 9   C. 10   D. 11   E. 14

QUESTION 31

What is output by the code to the right?

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

```
System.out.println(1<<3>>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

QUESTION 34

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

A. 5.8   B. 5.2   C. 2.4   D. null

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

```
Map<String, Double> map;
map = new TreeMap<String, Double>();
map.put("bug", 1.3);
map.put("dog", 5.8);
map.put("cat", 2.4);
map.put("cat", 5.9);
map.put("dog", 5.2);
map.put("cat", 7.4);


out.println(map.get("dog"));    //1
out.println(map.get("pig"));    //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, 5.8, 2.4, 5.9, 5.2, 7.4]

B. [1.3, 5.2, 7.4]

C. [1.3, 7.4, 2.4]

D. [1.3, 7.4, 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. 9

B. ray.length

C. ray.length+1

D. ray.size-1

E. 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. 7   B. 5   C. 4   D. 6   E. 3

QUESTION 38

What is output by the code to the right?

A. [null, one]   B. [null, top]

C. [null, one, top]   D. [one, top]

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

QUESTION 39

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

A. r

B. rm

C. an

D. rman

E. pp

QUESTION 40

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

A. 1

B. 2

C. 3

D. 4

E. 6

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

//////////////////////////////////////
//client code
int[] stuff = {12,3,7,6,4,0,1,5,2};
out.println(What.test(stuff));     //1
```

```java
Set<String> stringSet;
stringSet = new HashSet<String>();
stringSet.add("one");
stringSet.add(null);
stringSet.add(new String("top"));
System.out.println(stringSet);
```

```java
String x = "11papasmurf56superman";
String[] list = x.split("[d-h&&[^p]]");

out.println(list[2]);        //1
out.println(list.length);    //2
```