



5th Six Weeks Exam

Due Mar 15 at 11:59pm Points 40 Questions 40 Available Mar 14 at 12am - Mar 15 at 11:59pm 2 days Time Limit 75 Minutes

Submission Details:

Time: 72 minutes

Current Score: 35 out of 40

Kept Score: 35 out of 40

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	72 minutes	35 out of 40

Score for this quiz: 35 out of 40

Submitted Mar 15 at 11:13am

This attempt took 72 minutes.

Question 1

0 / 1 pts

Consider the following interface and class declarations.

```
public interface Vehicle
{
    /** @return the mileage traveled by this Vehicle */
    double getMileage();
}

public class Fleet
{
    private ArrayList<Vehicle> myVehicles;

    /** @return the mileage traveled by all vehicles in this Fleet */
    public double getTotalMileage()
    {
        double sum = 0.0;

        for (Vehicle v : myVehicles)
        {
            sum += /* expression */;
        }

        return sum;
    }
    // There may be instance variables, constructors, and methods that are not shown.

}
```

Which of the following can be used to replace /* expression */ so that getTotalMileage returns the total of the miles traveled for all vehicles in the fleet?

- myVehicles[v].getMileage()
- Vehicle.get(v).getMileage()
- getMileage(v)

You Answered

myVehicles.get(v).getMileage()

Correct Answer

v.getMileage()

Question 2

1 / 1 pts

Consider the following code segment. The code is intended to read nonnegative numbers and compute their product until a negative number is read; however, it does not work as intended. (Assume that the readInt method correctly reads the next number from the input stream.)

```
int k = 0;
int prod = 1;

while (k >= 0)
{
    System.out.print("Enter a number: ");
    k = readInt(); // readInt reads the next number from input
    prod = prod * k;
}
System.out.println("product: " + prod);
```

Which of the following best describes the error in the program?

- The while condition always evaluates to false.
- The while condition always evaluates to true.
- The variable prod is incorrectly initialized.
- The negative number entered to signal no more input is included in the product.
- If the user enters a zero, the computation of the product will be terminated prematurely.

Correct!

Question 3

1 / 1 pts

Consider the following class definitions.

```
public class Data
{
    private int x;

    public void setX(int n)
    {
        x = n;
    }
}
```

```

}
// ... other methods not shown
}

public class EnhancedData extends Data
{
    private int y;

    public void setY(int n)
    {
        y = n;
    }

    // ... other methods not shown
}

```

Assume that the following declaration appears in a client program.

```
EnhancedData item = new EnhancedData();
```

Which of the following statements would be valid?

- I. item.y = 16;
- II. item.setY(16);
- III. item.setX(25);

- I only
- I and II only
- II and III only
- I, II, and III
- II only

Correct!

Question 4

1 / 1 pts

Consider the following static method.

```

private static void recur(int n)
{
    if (n != 0)
    {
        recur(n - 2);
        System.out.print(n + " ");
    }
}

```

What numbers will be printed as a result of the call `recur(7)`?

- No numbers will be printed because of infinite recursion.
- 1 1 3 5 7
- Many numbers will be printed because of infinite recursion.
- 7 5 3 1
- 1 3 5 7

Correct!

Question 5

1 / 1 pts

Consider the following incomplete method. Method `findNext` is intended to return the index of the first occurrence of the value `val` beyond the position `start` in array `arr`.

```

//return index of first occurrence of val in arr
//after position start;
//return arr.length if val is not found
public int findNext(int[] arr, int val, int start)
{
    int pos = start + 1;

    while( /* condition */ )
        pos++;

    return pos;
}

```

For example, consider the following code segment.

```
int[] arr = [11, 22, 100, 33, 100, 11, 44, 100];
System.out.println(findNext(arr, 100, 2));
```

The execution of the code segment should result in the value 4 being printed.

Which of the following expressions could be used to replace `/* condition */` so that `findNext` will work as intended?

- (`arr[pos] != val`) && (`pos < arr.length`)
- (`pos < arr.length`) || (`arr[pos] != val`)
- (`pos < arr.length`) || (`arr[pos] == val`)
- (`arr[pos == val]`) && (`pos < arr.length`)
- (`pos < arr.length`) && (`arr[pos] != val`)

Correct!

Question 6

1 / 1 pts

Assume that methods f and g are defined as follows.

```
public int f(int x)
{
    if (x <= 0)
    {
        return 0;
    }
    else
    {
        return g(x - 1);
    }
}

public int g(int x)
{
    if (x <= 0)
    {
        return 0;
    }
    else
    {
        return (f(x - 1) + x);
    }
}
```

What value is returned as a result of the call f(6)?

Correct!

- 9
- 12
- 6
- 0
- 3

Question 7

1 / 1 pts

```
private int[] arr;

// precondition: arr.length > 0
public void mystery()
{
    int s1 = 0;
    int s2 = 0;

    for (int k = 0; k < arr.length; k++)
    {
        int num = arr[k];

        if (((num > 0) && (num % 2 == 0)))
            s1 += num;
        else if ((num < 0))
            s2 += num;
    }

    System.out.println(s1);
    System.out.println(s2);
}
```

Which of the following best describes the value of s2 output by the method mystery?

Correct!

- The sum of all negative values in arr
- The sum of all positive values in arr
- The sum of all negative odd values in arr
- The sum of all positive even values in arr
- The sum of all negative even values in arr

Question 8

1 / 1 pts

Consider the following declarations.

```
String valueOne = new String("value");
String valueTwo = new String("value");
```

Which of the following expressions evaluates to true?

- I. valueOne == valueTwo
- II. valueOne.equals(valueTwo)
- III. valueOne.compareTo(valueTwo) == 0

- I and III
- I and II
- I only
- II and III
- I, II, and III

Question 9

1 / 1 pts

Consider the following method.

```
public String goAgain(String str, int index)
```

```

{
    if(index >= str.length())
        return str;
    return str + goAgain(str.substring(index), index + 1);
}

```

What is printed as a result of executing the following statement?

```
System.out.println(goAgain("today", 1));
```

- todayoday
- todayto
- today
- todayodayay
- todayodaydayayy

Correct!

Question 10

1 / 1 pts

Refer to the following declarations.

```

public class Point
{
    private double myX;
    private double myY;

    // postcondition: this Point has coordinates (0,0)
    public Point()
    { /* implementation not shown */ }

    // postcondition: this Point has coordinates (x,y)
    public Point(double x, double y)
    { /* implementation not shown */ }

    // other methods not shown
}

public class Circle
{
    private Point myCenter;
    private double myRadius;

    // postcondition: this Circle has center at (0,0) and radius 0.0
    public Circle()
    { /* implementation not shown */ }

    // postcondition: this Circle has the given center and radius
    public Circle(Point center, double radius)
    { /* implementation not shown */ }

    // other methods not shown
}

```

In a client program which of the following correctly declares and initializes Circle cir with center at (29.5, 33.0) and radius 10.0?

- Circle circ = new Circle();

circ.myCenter = new Point(29.5, 33.0);

 circ.myRadius = 10.0;
- Circle circ = new Circle();

circ.myCenter = new Point();

circ.myCenter.myX = 29.5;

circ.myCenter.myY = 33.0;

 circ.myRadius = 10.0
- Circle circ = new Circle((29.5, 33.0), 10.0);
- Circle circ = new Circle(29.5, 33.0, 10.0);
- Circle circ = new Circle(new Point(29.5, 33.0), 10.0);

Correct!

Question 11

1 / 1 pts

Consider the following method.

```

public static void sort(String[] arr)
{
    for (int pass = arr.length - 1; pass >= 1; pass--)
    {
        String large = arr[0];
        int index = 0;
        for (int k = 0; k <= pass; k++)
        {
            if ((arr[k].compareTo(large)) > 0)
            {
                large = arr[k];
                index = k;
            }
        }
        arr[index] = arr[pass];
        arr[pass] = large;
    }
}

```

Assume arr is the following array.

"Ann", "Mike", "Walt", "Lisa", "Shari", "Jose", "Mary", "Bill"

Which is the intermediate value of arr after two iterations of the outer for loop in the call sort(arr)?

- "Ann" "Mike" "Walt" "Lisa" "Shari" "Jose" "Mary" "Bill"
- "Walt" "Shari" "Ann" "Lisa" "Mike" "Jose" "Mary" "Bill"
- "Ann" "Mike" "Lisa" "Shari" "Jose" "Mary" "Bill" "Walt"
- "Ann" "Mike" "Bill" "Lisa" "Mary" "Jose" "Shari" "Walt"

Correct!

Question 12

1 / 1 pts

Consider the following two static methods, where f2 is intended to be the iterative version of f1.

```
public static int f1(int n)
{
    if (n < 0)
    {
        return 0;
    } else
    {
        return (f1(n - 1) + n * 10);
    }
}

public static int f2(int n)
{
    int answer = 0;
    while (n > 0)
    {
        answer = answer + n * 10;
        n--;
    }
    return answer;
}
```

The method f2 will always produce the same results as f1 under which of the following conditions?

- I. $n < 0$
- II. $n = 0$
- III. $n > 0$

II and III only

III only

I only

I, II, and III

II only

Correct!

Question 13

1 / 1 pts

Refer to the following declarations.

```
public class Point
{
    private double myX;
    private double myY;

    // postcondition: this Point has coordinates (0,0)
    public Point()
    { /* implementation not shown */ }

    // postcondition: this Point has coordinates (x,y)
    public Point( double x, double y )
    { /* implementation not shown */ }

    // other methods not shown
}

public class Circle
{
    private Point myCenter;
    private double myRadius;

    // postcondition: this Circle has center at (0,0) and radius 0.0
    public Circle()
    { /* implementation not shown */ }

    // postcondition: this Circle has the given center and radius
    public Circle(Point center, double radius)
    { /* implementation not shown */ }

    // other methods not shown
}
```

Which of the following would be the best specification for a Circle method isInside that determines whether a Point lies inside this Circle?

public void isInside(boolean found)

public boolean isInside(Point p)

public boolean isInside(Point p, Point center, double radius)

public boolean isInside()

public void isInside(Point p, boolean found)

Correct!

Question 14

1 / 1 pts

Consider the following output.

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6

Which of the following code segments will produce the output shown above?

```
for (int j = 1; j <= 6; j++)
{
}
```

```
    }
    for (int k = 1; k <= j; k++)
        System.out.print(" " + j);
    System.out.println();
    ⓧ }
```

```
for (int j = 1; j < 6; j++)
{
    for (int k = 1; k < j; k++)
        System.out.print(" " + k);
    System.out.println();
    ⓧ }
```

```
for (int j = 1; j <= 6; j++)
{
    for (int k = 1; k < j; k++)
        System.out.print(" " + k);
    System.out.println();
    ⓧ }
```

Correct!

```
for (int j = 1; j <= 6; j++)
{
    for (int k = 1; k <= j; k++)
        System.out.print(" " + k);
    System.out.println();
    ⓧ }
```

```
for (int j = 1; j < 6; j++)
{
    for (int k = 1; k <= j; k++)
        System.out.print(" " + k);
    System.out.println();
    ⓧ }
```

Question 15

1 / 1 pts

Consider the following static method.

```
public static int calculate(int x)
{
    x = x + x;
    x = x + x;
    x = x + x;
    return x;
}
```

Which of the following can be used to replace the body of calculate so that the modified version of calculate will return the same result as the original version for all x?

- return 3 * x;
- return 8 * x;
- return 6 * x;
- return 3 + x;
- return 4 * x;

Correct!

Question 16

1 / 1 pts

Consider the following data field and method. The method removeDups is intended to remove all adjacent duplicate numbers from myData, but does not work as intended.

```
private ArrayList myData;
public void removeDups()
{
    int k = 1;
    while (k < myData.size())
    {
        if (myData.get(k).equals(myData.get(k-1)))
        {
            myData.remove(k);
        }
        k++;
    }
}
```

For example, if myData has the values 3 3 4 4 8 7 7 7, after calling removeDups, myData should have the values 3 4 8 7.

Assume that myData has the following values:

2 7 5 5 5 6 6 3 3 3

Which of the following represents myData after the incorrect removeDups is executed?

- 2 7 5 6 3 3
- 2 7 5 5 6 3 3
- 2 7 5 5 5 6 6 3 3
- 2 7 5 6 3
- 2 7 5 5 5 6 3 3

Correct!

Question 17

1 / 1 pts

The following incomplete method is intended to return the largest integer in the array numbers.

```
// precondition: numbers.length > 0
public static int findMax(int[] numbers)
{
    int posOfMax = 0;
    for (int index = 1; index < numbers.length; index++)
    {
        if (numbers[index] >
```

```

    {
        /* statement */
    }
    return numbers[posOfMax];
}

```

Which of the following can be used to replace `/* condition */` and `/* statement */` so that `findMax` will work as intended?

- numbers[index] > numbers[posOfMax] /* condition */
④ posOfMax = numbers[index]; /* statement */
- numbers[index] < posOfMax /* condition */
④ posOfMax = numbers[index]; /* statement */
- numbers[index] > posOfMax /* condition */
④ posOfMax = numbers[index]; /* statement */
- numbers[index] > numbers[posOfMax] /* condition */
④ posOfMax = index; /* statement */
- numbers[index] < numbers[posOfMax] /* condition */
④ posOfMax = index; /* statement */

Correct!

Question 18

1 / 1 pts

Consider the following method.

```

public void conditionalTest(int a, int b)
{
    if ((a > 0) && (b > 0))
    {
        if (a > b)
            System.out.println("A");
        else
            System.out.println("B");
    }
    else if ((b < 0) || (a < 0))
        System.out.println("C");
    else
        System.out.println("D");
}

```

What is printed as a result of the call `conditionalTest(3, -2)`?

- D
- C
- A
- Nothing is printed
- B

Correct!

Question 19

1 / 1 pts

Which of the following is (are) true of an interface?

- I. An interface can contain a constructor.
- II. An interface can be instantiated.
- III. If your class uses an interface, it must implement all methods in that interface.

- II only
- I, II, III
- III only
- I only
- I and II only

Correct!

Question 20

0 / 1 pts

Consider the following three declarations.

- I. Integer obj1 = new Integer(7);
- II. Comparable obj2 = new Integer(7);
- III. Comparable obj3 = new Comparable(7);

Which of these declaration is (are) legal?

- I and II only
- I and III only
- I only
- II and III only
- I, II, and III

Correct Answer

You Answered

Question 21

0 / 1 pts

Consider the following method.

```

public void mystery(int[ ] data)
{
    for (int k = 0; k < data.length -1;k++)
        data[k + 1] = data[k] + data[k + 1];
}

```

The following code segment appears in another method in the same class.

```

int[ ] values = {5, 2, 1, 3, 8};
mystery(values);
for (int v : values)
    System.out.print(v + " ");
System.out.println();

```

What is printed as a result of executing the code segment?

7 3 4 11 8

5 2 1 3 8

You Answered Nothing is printed because an `ArrayIndexOutOfBoundsException` is thrown during the execution of method `mystery`.

5 7 3 4 11

Correct Answer 5 7 8 11 19

Question 22

1 / 1 pts

Consider the following code segment.

```

int k = 1;
while (k < 20)
{
    if ((k % 3) == 1)
        System.out.print(k + " ");
    k++;
}

```

What is printed as a result of executing this code segment?

1 3 5 7 9 11 13 15 17 19

Correct! 1 4 7 10 13 16 19

2 4 6 8 10 12 14 16 18 20

2 5 8 11 14 17

3 6 9 12 15 18

Question 23

1 / 1 pts

Consider the following code segment.

```

int num1 = 0;
int num2 = 3;

while ((num2 != 0) && ((num1 / num2) >= 0))
{
    num1 = num1 - 2;
    num2 = num2 - 1;
}

```

What are the values of `num1` and `num2` after the while loop completes its execution?

num1 = 0, num2 = 3

num1 = 4, num2 = 1

num1 = 8, num2 = -1

The loop will never complete its execution because a division by zero will generate an `ArithmaticException`.

Correct! num1 = 6, num2 = 0

Question 24

1 / 1 pts

When designing classes, which of the following would be the best reason to use inheritance?

Inheritance reduces the number of polymorphic structures encapsulated in applications.

Inheritance allows for data encapsulation, while noninherited classes do not allow for data encapsulation.

Inheritance guarantees that the applications will compile and execute much more quickly.

Correct! Inheritance allows the creation of a subclass that can use the methods of its superclass without rewriting the code for those methods.

Inheritance allows you to write applications that require fewer base and super classes.

Question 25

1 / 1 pts

A `BoundedIntArray` represents an indexed list of integers. In a `BoundedIntArray` the user can specify a size, in which case the indices range

from 0 to size - 1. The user can also specify the lowest index, low, in which case the indices can range from low to low + size - 1.

```
public class BoundedIntArray
{
    private int[] myItems; // storage for the list
    private int myLowIndex; // lowest index
    public BoundedIntArray(int size)
    {
        myItems = new int[size];
        myLowIndex = 0;
    }
    public BoundedIntArray(int size, int low)
    {
        myItems = new int[size];
        myLowIndex = low;
    }
    // other methods not shown
}
```

Consider the following statements.

```
BoundedIntArray arr1 = new BoundedIntArray(100, 5);
BoundedIntArray arr2 = new BoundedIntArray(100);
```

Which of the following best describes arr1 and arr2 after these statements?

- arr1 and arr2 both represent lists of integers indexed from 5 to 104.
- arr1 and arr2 both represent lists of integers indexed from 0 to 99.
- arr1 represents a list of integers indexed from 0 to 104, and arr2 represents a list of integers indexed from 0 to 99.
- arr1 represents a list of integers indexed from 5 to 99, and arr2 represents a list of integers indexed from 0 to 99.
- arr1 represents a list of integers indexed from 5 to 104, and arr2 represents a list of integers indexed from 0 to 99.

Correct!

Question 26

1 / 1 pts

A BoundedIntArray represents an indexed list of integers. In a BoundedIntArray the user can specify a size, in which case the indices range from 0 to size - 1. The user can also specify the lowest index, low, in which case the indices can range from low to low + size - 1.

```
public class BoundedIntArray
{
    private int[] myItems; // storage for the list
    private int myLowIndex; // lowest index
    public BoundedIntArray(int size)
    {
        myItems = new int[size];
        myLowIndex = 0;
    }
    public BoundedIntArray(int size, int low)
    {
        myItems = new int[size];
        myLowIndex = low;
    }
    // other methods not shown
}
```

Which of the following is the best reason for declaring the data fields myItems and myLowIndex to be private rather than public?

- This permits BoundedIntArray objects to be initialized and modified.
- This permits BoundedIntArray methods to be written and tested before code that uses a BoundedIntArray is written.
- This prevents compile-time errors whenever public methods are called that access the private data fields.
- This prevents run-time errors whenever public methods are called that access the private data fields.
- This helps to prevent clients of the BoundedIntArray class from writing code that would need to be modified if the implementation of BoundedIntArray were changed.

Correct!

Question 27

0 / 1 pts

The following incomplete method is intended to sort its array parameter arr in increasing order.

```
//postcondition: arr is sorted in increasing order
public static void sortArray(int[] arr)
{
    int j;
    for(j = arr.length - 1; j > 0; j--)
    {
        int pos = j;
        for /* missing code */
        {
            if(arr[k] > arr[pos])
            {
                pos = k;
            }
        }
        swap(arr, j, pos);
    }
}
```

Assume that swap(arr, j, pos) exchanges the values of arr[j] and arr[pos].

Which of the following could be used to replace /* missing code */ so that executing the code segment sorts the values in array arr.

- k = 1; k > arr.length; k++
- k = j - 1; k >= 0; k--
- k = 1; k < arr.length; k++
- k = j - 1; k > 0; k--
- k = 0; k <= arr.length; k++

Correct Answer

You Answered

Question 28

1 / 1 pts

Consider the following class definitions.

```
public class A
{
    private int a1;

    public void methodA()
    {
        methodB();           // Statement I
    }
}

public class B extends A
{
    public void methodB()
    {
        methodA();           // Statement II
        a1 = 0;              // Statement III
    }
}
```

Which of the labeled statements in the methods shown above will cause a compile-time error?

- I only
- I and III
- I and II
- II and III
- III only

Correct!

Question 29

1 / 1 pts

Assume that class Vehicle contains the following method.

```
public void setPrice(double price)
{ /* implementation not shown */ }
```

Also assume that class Car extends Vehicle and contains the following method.

```
public void setPrice(double price)
{ /* implementation not shown */ }
```

Assume Vehicle v is initialized as follows.

```
Vehicle v = new Car();
v.setPrice(1000.0);
```

Which of the following is true?

- The code above will cause a compile-time error, because a subclass cannot have a method with the same name and the same signature as its superclass.
- The code above will cause a run-time error, because a subclass cannot have a method with the same name and the same signature as its superclass.
- The code v.setPrice(1000.0); will cause the setPrice method of the Car class to be called.
- The code above will cause a compile-time error because of type mismatch.
- The code v.setPrice(1000.0); will cause the setPrice method of the Vehicle class to be called.

Correct!

Question 30

1 / 1 pts

Consider the following method.

```
public int someCode(int a, int b, int c)
{
    if ((a < b) && (b < c))
        return a;
    if ((a >= b) && (b >= c))
        return b;
    if ((a == b) || (a == c) || (b == c))
        return c;
}
```

Which of the following best describes why this method does not compile?

- It is possible to reach the end of the method without returning a value.
- The if statements must have else parts when they contain return statements.
- The third if statement is not reachable.
- Methods cannot have multiple return statements.
- The reserved word return cannot be used in the body of an if statement.

Correct!

Question 31

1 / 1 pts

A bear is an animal and a zoo contains many animals, including bears. Three classes Animal, Bear, and Zoo are declared to represent animal, bear, and zoo objects. Which of the following is the most appropriate set of declarations?

```

public class Animal extends Zoo
{
    private Bear myBear;
    ...
    @]
}

public class Bear extends Animal, Zoo
{
    ...
    @]

public class Bear extends Animal implements Zoo
{
    ...
    @]

public class Animal extends Bear
{
    ...
}

public class Zoo
{
    private Animal[] myAnimals;
    ...
    @]
}

```

Correct!

```

public class Bear extends Animal
{
    ...
}

public class Zoo
{
    private Animal[] myAnimals;
    ...
    @]
}

```

Question 32

1 / 1 pts

Assume that a, b, and c are variables of type int. Consider the following three conditions.

- I. $(a == b) \&\& (a == c) \&\& (b == c)$
- II. $(a == b) || (a == c) || (b == c)$
- III. $((a - b) * (a - c) * (b - c)) == 0$

Assume that subtraction and multiplication never overflow. Which of the conditions above is (are) always true if at least two of a, b, and c are equal?

- I only
- II only
- III and II
- I and II
- III only

Correct!

Question 33

0 / 1 pts

Consider the following data field and method. The method removeDups is intended to remove all adjacent duplicate numbers from myData, but does not work as intended.

```

private ArrayList myData;
public void removeDups()
{
    int k = 1;
    while (k < myData.size())
    {
        if ((myData.get(k)).equals((myData.get(k-1)))
        {
            myData.remove(k);
        }
        k++;
    }
}

```

For example, if myData has the values 3 3 4 4 4 8 7 7 7, after calling removeDups, myData should have the values 3 4 8 7.

Which of the following best describes how to fix the error so that removeDups works as intended?

- There should be an else before the statement k++;
- The if test should be $(myData.get(k)).equals((myData.get(k + 1)))$.
- The while condition should be $(k < myData.size() - 1)$.
- k should be initialized to 0 at the beginning of the method.

Correct Answer

- The body of the if statement should be: `myData.remove(k - 1);`

You Answered

Question 34

1 / 1 pts

Consider the following declaration of the class NumSequence, which has a constructor that is intended to initialize the instance variable seq to an ArrayList of numberOfValues random floating point values in the range [0.0, 1.0].

```

public class NumSequence
{
    private ArrayList<Double> seq;
}

```

```

//precondition: numberofValues > 0
//postcondition: seq has been initialized to a ArrayList of
//    length numberofValues; each element of seq
//    contains a random Double in the range [0.0, 1.0]
public NumSequence(int numberofValues)
{
    /* missing code */
}

```

Which of the following code segments could be used to replace /* missing code */ so that the constructor will work as intended?

```

I.
ArrayList<Double> seq = new ArrayList<Double>();
for(int k = 0; k < numberofValues; k++)
    seq.add(new Double(Math.random()));

II.
seq = new ArrayList<Double>();
for(int k = 0; k < numberofValues; k++)
    seq.add(new Double(Math.random()));

III.
ArrayList<Double> temp = new ArrayList<Double>();
for(int k = 0; k < numberofValues; k++)
    temp.add(new Double(Math.random()));
seq = temp;

```

I and II

II only

I and III

II and III

III only

Correct!

Question 35

1 / 1 pts

Which of the following is a reason to use an ArrayList instead of an array?

Correct!

- An ArrayList resizes itself as necessary when items are added, but an array does not.
- An ArrayList provides access to the number of items it stores, but an array does not.
- An ArrayList always uses less memory than an array does.
- An ArrayList can store objects and an array can only store primitive types.
- An ArrayList allows faster access to its kth item than an array does.

Question 36

1 / 1 pts

```

private int[] arr;

// precondition: arr.length > 0
public void mystery()
{
    int s1 = 0;
    int s2 = 0;

    for (int k = 0; k < arr.length; k++)
    {
        int num = arr[k];

        if ((num > 0) && (num % 2 == 0))
            s1 += num;
        else if (num < 0)
            s2 += num;
    }

    System.out.println(s1);
    System.out.println(s2);
}

```

Which of the following best describes the value of s1 output by the method mystery?

- The sum of all values greater than 2 in arr
- The sum of all positive odd values in arr
- The sum of all positive even values in arr
- The sum of all positive values in arr
- The sum of all values less than 2 in arr

Question 37

1 / 1 pts

Consider the following two data structures for storing several million words.

- I. An array of words, not in any particular order
- II. An array of words, sorted in alphabetical order

Which of the following statements most accurately describes the time needed for operations on these data structures?

- Finding the longest word is faster in II than in I.
- Finding a given word is faster in II than in I.
- Inserting a word is faster in II than in I.
- Finding the first word in alphabetical order is faster in I than in II.
- Finding a given word is faster in I than in II.

Correct!

Question 38

1 / 1 pts

Consider the following method, between, which is intended to return true if x is between lower and upper, inclusive and false otherwise.

```
// precondition: lower <= upper
// postcondition: returns true if x is between lower and upper,
//                 inclusive; otherwise, returns false
public boolean between( int x, int lower, int upper )
{
    /* missing code */
}
```

Which of the following can be used to replace /* missing code */ so that between will work as intended?

- return lower <= x <= upper;
- return (x >= lower) || (x <= upper);
- return (x >= lower) && (x <= upper);
- return (x <= lower) || (x >= upper);
- return (x <= lower) && (x >= upper);

Correct!

Question 39

1 / 1 pts

Consider the static method selectSort shown below. Method selectSort is intended to sort an array into increasing order; however, it does not always work as intended.

```
// precondition: numbers.length > 0
// postcondition: numbers is sorted in increasing order
public static void selectSort( int[] numbers )
{
    int temp;
    for (int j = 0; j < numbers.length - 1; j++) // Line 1
    {
        int pos = 0; // Line 2
        for (int k = j + 1; k < numbers.length; k++) // Line 3
        {
            if (numbers[k] < numbers[pos]) // Line 4
            {
                pos = k; // Line 5
            }
        }
        temp = numbers[j];
        numbers[j] = numbers[pos];
        numbers[pos] = temp;
    }
}
```

Which of the following changes should be made so that selectSort will work as intended?

- Line 4 should be changed to:
 if (numbers[k] > numbers[pos])
- Line 2 should be changed to:
 int pos = j;
- Line 1 should be changed to:
 for (int j = 0; j < numbers.length - 2; j++)
- Line 3 should be changed to:
 for (int k = 0; k < numbers.length; k++)
- Line 5 should be changed to:
 k = pos;

Correct!

Question 40

1 / 1 pts

Consider the following class declaration.

```
public class IntCell
{
    private int myStoredValue;

    // constructor not shown

    public int getValue()
    {
        return myStoredValue;
    }

    public String toString()
```

```
{  
    return "" + myStoredValue;  
}
```

Assume that the following declaration appears in a client class.

```
IntCell m = new IntCell();
```

Which of these statements can be used in the client class?

- I. System.out.println(m.getValue());
- II. System.out.println(m.myStoredValue);
- III. System.out.println(m);

II only

I only

I and II

I and III

III only

Correct! 

Quiz Score: 35 out of 40

[« Previous](#)

[Next »](#)