

consecutive even integers that
t. For example, if evenPrint
ould display 468101214.

1

Which of the following can be used to replace `/* missing loop header */` so that the method works as intended?

A

```
for (int i = 0; i < first + last; i++)
```

B

```
for (int i = 0; i <= last - first; i += 2)
```

C

```
for (int i = first; i < last; i += 2)
```

D

```
for (int i = first; i <= last; i++)
```

E

```
for (int i = first; i <= last; i += 2)
```

Question 1 of 40

Next

Consider the following method, which is intended to print the consecutive even integers that are greater than or equal to `first` and less than or equal to `last`. For example, if `evenPrint` is called with parameters `4` and `14`, in that order, the method should display `468101214`.

```
/** Precondition:  
 * first is an even integer greater than or  
 * equal to 0.  
 * first <= last < Integer.MAX_VALUE - 1  
 */  
  
public void evenPrint(int first, int last)  
{  
    /* missing loop header */  
    {  
        System.out.print(i);  
    }  
}
```

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```
if (a.equals(b))  
{  
    return false;  
}  
  
if ((s1.length() == s2.length()) &&  
    !(a.equals(b)))  
{  
    return false;  
}
```

- A I only
- B II only
- C III only
- D I and III
- E II and III

Which of the following can be used to replace “” in the missing code, so that the method will work as intended?

I.

```
if (a.equals(b))
{
    return true;
}
```

II.

```
if (a.equals(b))
{
    return false;
}
```

III.

```
if ((s1.length() == s2.length()) &&
    !(a.equals(b)))
{
    return false;
}
```

I

Consider the following incomplete method.

```
/** Precondition: s1.length() > 0,  
 *                  s2.length() > 0  
 */  
  
public boolean differByFirst(String s1,  
                           String s2)  
{  
    String a = s1.substring(0, 1);  
    String b = s2.substring(0, 1);  
    /* missing code */  
    return  
        s1.substring(1).equals(s2.substring(1));  
}
```

The `differByFirst` method is intended to return `true` if `s1` and `s2` are the same except for their first characters; otherwise it returns `false`. The following list gives several examples of the intended behavior of `differByFirst`.

- `differByFirst("cat", "hat")` returns `true`
- `differByFirst("dog", "dig")` returns `false`
- `differByFirst("cta", "bat")` returns `false`
- `differByFirst("cat", "patch")` returns `false`
- `differByFirst("dog", "dog")` returns `false`

A I only

B II only

C III only

D I and III

E II and III

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

I

I.

```
if (a.equals(b))
{
    return true;
}
```

II.

```
if (a.equals(b))
{
    return false;
}
```

III.

```
if ((s1.length() == s2.length()) &&
    !(a.equals(b)))
{
    return false;
}
```

Consider the following method.

```
public int computeValue(ArrayList<Integer> nums)
{
    int count = 0;

    for (int i = 0; i < nums.size() - 1; i++)
    {
        if (nums.get(i) >= nums.get(i + 1))
        {
            count += 2;
        }
        else
        {
            count--;
        }
    }
    return count;
}
```

A

B

C

D

E

3

What value is returned when `computeValue` is called with a properly declared and initialized `ArrayList` of `Integer` objects containing the values 9, 7, 3, 5, 4, and 6, in that order?

(A) 1

(B) 2

(C) 3

(D) 4

(E) 6

Directions ▾



4

How ma

ArrayList

'elated'

A

1

B

2

C

3

D

4

E

5

Consider the following method.

```
public void keepShort(ArrayList<String> wordArr)
{
    for (int i = 0; i < wordArr.size(); i++)
    {
        if (wordArr.get(i).length() > 5)
        {
            wordArr.remove(i);
        }
    }
}
```

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How many times will the `remove` method be called if the `keepShort` method is called with an `ArrayList` parameter containing the values "cheerful", "joyful", "happy", "glad", "elated", and "delighted", in that order?

(A) 1 time

(B) 2 times

(C) 3 times

(D) 4 times

(E) 5 times

Which of the fo

```
if (waterAmount < 25)
{
    if (waterAmount < 10)
    {
        System.out.println("Need more water");
    }
    else
    {
        System.out.println("Low water level");
    }
}
else
{
    if (waterAmount < 75)
    {
        System.out.println("Water level ok");
    }
    else
    {
        System.out.println("Good water level");
    }
}
```

A 5, 20, 50

B 5, 25, 50,

C 5, 25, 75

D 10, 25, 50,

E 10, 25, 75



5

Which of the following sets of test cases executes each branch of each conditional statement?

A 5, 20, 50, 75

B 5, 25, 50, 75

C 5, 25, 75

D 10, 25, 50, 75

E 10, 25, 75

Consider the following Boolean expression, where valueA, valueB, and valueC are properly declared and initialized Boolean variables.

```
!valueC && (valueA || valueB)
```

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Which of the following Boolean expressions always evaluates to the same value as the given expression?

A

`valueC && !(valueA || valueB)`

B

`valueC && (!valueA || !valueB)`

C

`!(valueC && (!valueA || !valueB))`

D

`!(valueC || !(valueA && valueB))`

E

are properly

Which of the
expression?

A

valueC && !(valueA || valueB)

B

valueC && (!valueA || !valueB)

C

!(valueC && (!valueA || !valueB))

D

!(valueC || !(valueA && valueB))



E

!(valueC || (!valueA && !valueB))

Question 6 of 40

Next

Consider the following method.

```
/** Precondition: num > 0 */
public double dig(int num)
{
    int x = 0;
    int y = 0;

    while (num > 0)
    {
        y++;
        x += num % 10;
        num = num / 10;
    }

    return (double) x / y;
}
```



7

Which of the following best describes the result of executing the method?

- (A) The average of the digits in num is returned.
- (B) The number of digits in num is returned.
- (C) The sum of the digits in num is returned.
- (D) Nothing is printed because the method does not compile.
- (E) Nothing is printed because of an infinite while loop.



8

Which of the
differs from t

Consider the following method.

```
public void displaySubstrings(String str)
{
    for (int j = 0; j < str.length(); j++)
    {
        for (int k = 0; k < str.length(); k++)
        {
            String entry = str.substring(j, j + 1);
            System.out.print(entry + " ");
        }
    }
}
```

The method is modified by changing the inner `for` loop header to the following.

```
for (int k = j; k < str.length(); k++)
```

A The d
displa

B The m
becau:

C The m
becaus

D The ou
same n

E The out
only the

Which of the following best explains how the output displayed by the modified method differs from the output displayed by the original method?

- (A) The difference cannot be determined because the number of substrings displayed by both versions of the method depends on the length of `str`.
- (B) The modified method will display fewer substrings than the original method because the inner `for` loop iterates fewer times in the modified method.
- (C) The modified method will display more substrings than the original method because the inner `for` loop iterates more times in the modified method.
- (D) The output displayed will be the same because the outer `for` loop iterates the same number of times in both versions of the method.
- (E) The output displayed will be the same because the `substring` method call uses only the outer loop control variable `j`.

9

Which of the following statements will properly initialize the int variable n to a randomly selected integer value between 1 and 10, inclusive?

(A)

```
int n = (int) (Math.random() * 10);
```

(B)

```
int n = (int) (Math.random() * 10) + 1;
```

(C)

```
int n = (int) Math.random() * 10 + 1;
```

(D)

```
int n = (int) (Math.random() * 11);
```

(E)

```
int n = (int) (Math.random() * 11) - 1;
```



10

Consider the following incomplete method, which is intended to count the number of words that begin with the letter "A" in a list of strings.

```
public int countA(ArrayList<String> words)
{
    int count = 0;

    for (String w : words)
    {
        String firstLetter = w.substring(0, 1);
        if ( /* missing condition */ )
        {
            count++;
        }
    }
    return count;
}
```

Which
count

I

II

A

B

C

D

E

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10

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

- I. `firstLetter.compareTo("A") > 0`
- II. `firstLetter.compareTo("A") == 0`
- III. `firstLetter.equals("A")`

A I only

B II only

C I and III only

D II and III only

E I, II, and III only

Consider the following method.

```
public String arrayChecker(String[] arr)
{
    String result = "";

    for (int i = 1; i < arr.length; i++)
    {
        if (arr[i].length() > arr[i - 1].length())
        {
            result += arr[i].substring(0, 1);
        }
    }
    return result;
}
```

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Question 11 of 40



11

For which of the following array parameters will the `arrayChecker` method return "ABC" ?

- (A) An array with elements "Apply", "Blue", "Cat", "Double", and "Flowers", in that order
- (B) An array with elements "Baker", "Astronaut", "Barber", "Chef", and "Accountant", in that order
- (C) An array with elements "Element", "Department", "Cabinet", "Bureau", and "Agent", in that order
- (D) An array with elements "Giraffe", "Armadillo", "Leopard", "Bison", and "Chinchilla", in that order
- (E) An array with elements "Pear", "Apple", "Banana", "Guava", and "Cantaloupe", in that order

A

B

C

In the following code segment, assume that `counters` is a properly declared and initialized integer array.

```
for (int i = 0; i < counters.length; i++)  
{  
    counters[i] += 3;  
}
```

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12

ized

Which of the following code segments produces the same result as the given code segment?

(A)

```
for (int i = counters.length; i > 0; i--)  
{  
    counters[i] += 3;  
}
```

(B)

```
for (int i : counters)  
{  
    i += 3;  
}
```

(C)

```
for (int i : counters)  
{  
    counters[i] += 3;  
}
```

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C

```
for (int i : counters)
{
    counters[i] += 3;
}
```

D

```
int i = 1;
while (i < counters.length)
{
    counters[i] += 3;
    i++;
}
```

E

```
int i = counters.length - 1;
while (i >= 0)
{
    counters[i] += 3;
    i--;
}
```

The t
three

Which
paramete

```
public int processArray(String[][] arr)
{
    int result = 0;

    for (int i = 0; i < arr.length; i++)
    {
        result += rowCheck(arr[i]);
    }
    return result;
}

public int rowCheck(String[] rowArr)
{
    int maxLength = 0;

    for (int k = 0; k < rowArr.length; k++)
    {
        if (rowArr[k].length() > maxLength)
        {
            maxLength = rowArr[k].length();
        }
    }
    return maxLength;
}
```

Shuyi Jin

Consider the following -

```
public int processArray(String[][] arr)
{
    int result = 0;

    for (int i = 0; i < arr.length; i++)
    {
        result += rowCheck(arr[i]);
    }
    return result;
}

public int rowCheck(String[] rowArr)
{
    int maxLength = 0;

    for (int k = 0; k < rowArr.length; k++)
    {
        if (rowArr[k].length() > maxLength)
        {
            maxLength = rowArr[k].length();
        }
    }
    return maxLength;
}
```

Hide



13

The two-dimensional string array `inputArr` is properly declared and initialized to have three rows and two columns. The following shows the contents of `inputArr`.

```
{{"hat",    "hop"},  
 {"paper",   "plan"},  
 {"bark",    "bat"}}
```

Which of the following values is returned when the `processArray` method is called with the parameter `inputArr`?

(A)

5

(B)

9

(C)

10

(D)

12

(E)

22



Consider the following method.

```
public void printSomething(int[][] arr)
{
    String output = "";
    for (int r = 0; r < arr[0].length; r++)
    {
        for (int c = 0; c < arr.length; c++)
        {
            output += arr[r][c] + " ";
        }
        output += "\n";
    }
    System.out.println(output);
}
```

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Hide



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14

The `printSomething` method is called with a two-dimensional array of integers with two rows and three columns. The first row of the array contains the values 1, 2, and 3, in that order, and the second row of the array contains the values 4, 5, and 6, in that order. What, if anything, is printed when the method is executed?

(A) 1 2
4 5

(B) 1 4
2 5

(C) 1 4
2 5
3 6

(D) 1 2 3
4 5 6

(E) Nothing is printed because an `ArrayIndexOutOfBoundsException` is thrown.

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15

Which of the following

Consider the following method.

```
/** Precondition: y > 0
 *
 *           x * y < Integer.MAX_VALUE
 */
public int doCalculation(int x, int y)
{
    int result = 0;
    if (x > 0)
    {
        if (x % y == 0)
        {
            result = x * y;
        }
    }
    else
    {
        result = Math.abs(x);
    }
    return result;
}
```

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(A) The method

otherwise it returns

(B) The method

it returns

(C) The method

otherwise it returns

(D) The method

it returns

(E) The method



15

Which of the following best describes the return value when the method is executed?

- (A) The method returns the product of x and y when x is positive and greater than y ; otherwise it returns the absolute value of x .
- (B) The method returns the product of x and y when x is positive and greater than y ; it returns the absolute value of x when x is negative; otherwise it returns 0.
- (C) The method returns the product of x and y when x is positive and a multiple of y ; otherwise it returns 0.
- (D) The method returns the product of x and y when x is positive and a multiple of y ; it returns the absolute value of x when x is negative; otherwise it returns 0.
- (E) The method always returns 0.

Consider the following method.

```
public boolean isReady(boolean hasKeys,  
                      boolean hasWallet,  
                      boolean hasGlasses)  
{  
    if ((hasKeys || hasWallet) && // Line 5  
        (hasKeys || hasGlasses)) // Line 6  
    {  
        return true;  
    }  
    else  
    {  
        return false;  
    }  
}
```

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Con
line

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Wh
mod

A

B

C

D

E



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16

Consider a modification to the method that changes the Boolean expression that begins on line 5 and ends on line 6 to the following.

```
(hasKeys || (hasWallet && hasGlasses))
```

Which of the following best explains the difference, if any, between the return value of the modified method and the return value of the original method?

- (A) The modified method always returns the same value as the original method.
- (B) The modified method never returns the same value as the original method.
- (C) The modified method returns the same value as the original method only when hasKeys, hasWallet, and hasGlasses have the same value.
- (D) The modified method returns the same value as the original method only when hasWallet and hasGlasses have the same value.
- (E) The modified method returns the same value as the original method only when hasWallet and hasGlasses have different values.

Directions ▾

Consider the following method.

```
public String checker(int x, double y)
{
    if ((x / 3) == (y / 3))
    {
        return "same";
    }
    else
    {
        return "different";
    }
}
```

17

Which o
5 and y l

A

B

C

D

E

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17

Which of the following correctly explains the result of a call to `checker` when `x` has the value `5` and `y` has the value `5.0`?

- (A) The string "same" is returned because `x / 3` equals `y / 3`.
- (B) The string "same" is returned because `==` is not the correct operator to test for equality.
- (C) The string "different" is returned because `==` is not the correct operator to test for equality.
- (D) The string "different" is returned because the expression `x / 3` evaluates to a different value than the expression `y / 3`.
- (E) No value is returned because the method `checker` throws an exception.



Consider the following method, which is intended to return the average of its three parameters.

```
/** Precondition: v1, v2, v3 >= 0 */
public double avg(int v1, int v2, int v3)
{
    double averageVal =           // Line 4
        (double) ((v1 + v2 + v3) / 3); // Line 5
    return averageVal;
}
```

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18

Which of the following best describes the error, if any, in the method?

- (A) The value 0 is always returned because integer division occurs before the cast in the statement that begins on line 4 and ends on line 5.
- (B) A value less than the average may be returned because integer division occurs before the cast in the statement that begins on line 4 and ends on line 5.
- (C) A value greater than the average may be returned because integer division occurs before the cast in the statement that begins on line 4 and ends on line 5.
- (D) No value is returned. A compile-time error occurs because the cast to double can only be applied to a single variable.
- (E) The method always returns the average.

49:25

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AP Comp. Sci. A

Directions ▾

19

Which
"compu

Consider the following method.

```
public String varySomething(String inputValue,
                            int upader)

{
    String result = "";

    while (upader < inputValue.length())
    {
        result += inputValue.substring(upader);
        upader++;
    }

    return result;
}
```

A

B

C

D

E



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19

Which, if any, of the following is returned when the method is called with parameters "computer" and 4, in that order?

- (A) "compucomputcomputecomputer"
- (B) "compcompucomputcomputecomputer"
- (C) "uterterer"
- (D) "utertererr"
- (E) Nothing is returned. A `StringIndexOutOfBoundsException` will occur before the method returns.

AP Comp. Sci. A

Directions ▾

Consider the following code segment, where `jMax` and `kMax` are nonnegative integer values and `doSomething` is a method that appears in the same class as the code segment.

```
for (int j = 0; j < jMax; j++)  
{  
    for (int k = 1; k < kMax; k++)  
    {  
        doSomething(j, k);  
    }  
}
```

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er values

20

Which of the following represents the number of times the method `dosomething` will be called?

A `jMax + kMax` times

B `jMax + kMax + 2` times

C `jMax * kMax` times

D `jMax * (kMax - 1)` times

E `(jMax - 1) * kMax` times

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AP Comp. Sci. A

Directions ▾

Consider the following method.

```
public static int mystery(int x, int y)
{
    if ((x < y) || (y < 0))
    {
        return 0;
    }
    else if ((x == y) || (y == 0))
    {
        return 1;
    }
    else
    {
        return mystery(x - 1, y) +
               mystery(x - 1, y - 1);
    }
}
```

21

How many
initial call

A 4

B 5

C 6

D 7

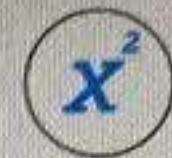
E

45:39

Hide



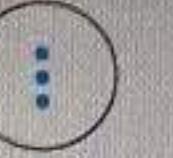
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21

How many calls are made to method mystery in calculating `mystery(3, 2)`, including the initial call?

(A) 4 calls

(B) 5 calls

(C) 6 calls

(D) 9 calls

(E) 10 calls

AP Comp. Sci. A

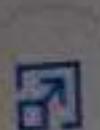
Directions ▾



Consider the following method.

```
public int arrayMethod(int[] arr, int x)
{
    if (x >= arr.length)
    {
        return arrayMethod(arr, x - 1);
    }
    else if (x < 0)
    {
        return 1;
    }
    else
    {
        return arr[x] + arrayMethod(arr, x - 1);
    }
}
```

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22

An array `nums` with 5 elements is created. The elements of `nums` are assigned the values 5, 2, -7, 3, and 1, in that order. What value is returned when `arrayMethod` is called with the parameters `nums` and 2, in that order?

(A) 0

(B) 1

(C) 4

(D) 5

(E) 8

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Directions ▾



Consider the following method.

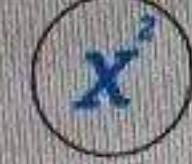
```
/** Precondition: arr has at least
 * two rows and two columns.
 */
public void makePattern(String[][] arr)
{
    for (int j = 0; j < arr[0].length; j++)
    {
        if (j % 2 == 1)
        {
            for (int k = 0; k < arr.length; k++)
            {
                arr[k][j] = "****";
            }
        }
        else
        {
            for (int k = 0; k < arr.length; k++)
            {
                arr[k][j] = "----";
            }
        }
    }
} // Line 23
```

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23

Which of the following best describes the contents of `arr` when line 23 is reached?

- (A) All elements of the array contain "---".
- (B) Elements in columns with odd indices contain "---" and elements in columns with even indices contain "***".
- (C) Elements in columns with odd indices contain "***" and elements in columns with even indices contain "---".
- (D) Elements in rows with odd indices contain "---" and elements in rows with even indices contain "***".
- (E) Elements in rows with odd indices contain "***" and elements in rows with even indices contain "---".

Directions ▾



Consider the following method.

```
/** Precondition: arr has at least
 *   two rows and two columns.
 */
public void makePattern(String[][] arr)
{
    for (int j = 0; j < arr[0].length; j++)
    {
        if (j % 2 == 1)
        {
            for (int k = 0; k < arr.length; k++)
            {
                arr[k][j] = "****";
            }
        }
        else
        {
            for (int k = 0; k < arr.length; k++)
            {
                arr[k][j] = "----";
            }
        }
    }
    // Line 23
}
```

23

Whi

A

B

C

D

E



Consider the following method, which is intended to return the total number of consecutive 0s at the end of each row of a two-dimensional array. For example, a row containing the values 1, 0, 2, 0, and 0, in that order, would cause the count to be incremented by 2. If a row of the array contains all 0s, the count is incremented by the number of elements in the row.

```
public int countZerosAtEnd(int[][] arr)
{
    int count = 0;
    for (int j = 0; j < arr.length; j++)
    {
        boolean stillZero = true;
        for (int k = arr[0].length - 1; k >= 0; k--)
        {
            if (stillZero && arr[j][k] == 0)
            {
                count++;
            }
            else
            {
                stillZero = false;
            }
        }
    }
    return count;
}
```

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24

The method does not work as intended. Which of the following best describes the error in the method?

- (A) The method counts all the os in each row.
- (B) The method counts os at the beginning of each row instead of at the end of each row.
- (C) The method counts every element in the array because the condition in the if statement is incorrect.
- (D) The method does not traverse all columns because the inner for loop header is incorrect.
- (E) The method throws an `ArrayIndexOutOfBoundsException` because the outer for loop header is incorrect.

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The update
variable,
replace /

Consider the following class declarations.

```
public class Song
{
    private String title;
    private String artist;
    private double duration;

    /** Assigns t to title, a to artist,
     * and d to duration
     */
    public Song(String t, String a, double d)
    { /* implementation not shown */ }

    public double getDuration()
    { return duration; }

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

```
public class Playlist
{
    private ArrayList<Song> songs;
}
```

Shuyi Jin

A

B

C

D

Directions ▾

```
public double getDuration()  
{ return duration; }  
  
// There may be instance variables,  
// constructors, and methods  
// that are not shown.  
}
```

```
public class Playlist  
{  
    private ArrayList<Song> songList;  
    private double total;  
  
    public Playlist(ArrayList<Song> sl)  
    { /* implementation not shown */ }  
  
    public void updateTotal()  
    {  
        total = 0;  
  
        for (Song s : songList)  
        {  
            /* missing code */  
        }  
    }  
}
```

25

The updateTotal method must calculate the total duration of all songs in the songList. The updateTotal method must calculate the total duration of all songs in the songList.

A

P

B

S

C

S

D

tot

33:13

Hide



25

The `updateTotal` method in the `Playlist` class is intended to update the `total` instance variable, which stores the total duration of all songs in `songList`. Which of the following can replace `/* missing code */` so that `updateTotal` works as intended?

(A)

```
Playlist.total += s.getDuration();
```

(B)

```
s.total += s.duration;
```

(C)

```
s.total += s.getDuration();
```

(D)

```
total += s.duration;
```

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Hide

The updateTotal method in the Playlist class is intended to update the total instance variable, which stores the total duration of all songs in songList. Which of the following can replace /* missing code */ so that updateTotal works as intended?

(A)

```
Playlist.total += s.getDuration();
```

(B)

```
s.total += s.duration;
```

(C)

```
s.total += s.getDuration();
```

(D)

```
total += s.duration;
```

(E)

```
total += s.getDuration();
```

31:16

Hide

AP Comp. Sci. A

Directions ▾

Consider the following class declaration.

```
public class ExamClass
{
    private int score;
    private int value;

    public ExamClass()
    { /* implementation not shown */ }

    private void applyCurve()
    { /* implementation not shown */ }

    private int calculateBonus()
    { /* implementation not shown */ }

    public void displayGrade(int course)
    { /* implementation not shown */ }
}
```

26

An ExamClass object exam is
class other than ExamClass. V
method on the ExamClass ob

- I. applyCurve
- II. calculateBonus
- III. displayGrade

(A) II only

(B) III only

(C) I and II only

(D) I and III only

(E) I, II, and III

31:15

[Hide](#)

26

An ExamClass object exam is declared and instantiated in a method `test`, which appears in a class other than ExamClass. Which of the following methods could be called from the `test` method on the ExamClass object `exam`?

- I. `applyCurve`
- II. `calculateBonus`
- III. `displayGrade`

A II only

B III only

C I and II only

D I and III only

E I, II, and III

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27

Which of the
given spee

The `getFine` method calculates a fine for speeding tickets. The amount of the fine is represented as an `int`. The method takes the speed limit and the actual speed, in miles per hour, as parameters.

- If the actual speed is less than or equal to the speed limit, the fine is 0.
- If the actual speed is between 1 and 15 miles per hour over the speed limit, inclusive, the fine is 5 times the amount over the speed limit.
- If the actual speed is 16 or more miles per hour over the speed limit, the fine is 10 times the amount over the speed limit.

The following are intended as possible implementations of the `getFine` method. Assume `speedLimit` and `actualSpeed` are both greater than 0.

```
public static int getFine(int speedLimit,
                           int actualSpeed)
{
    int result = 0;
    if (actualSpeed > speedLimit)
    {
        result = (actualSpeed - speedLimit) * 5;
    }
    if (actualSpeed - speedLimit > 15)
    {
        result += (actualSpeed - speedLimit) * 5;
    }
}
```

(A) I

(B) II

(C) III

(D) I and II

(E) I, II, and III

Directions ▾

I.

```
        result = (actualSpeed - speedLimit) * 5;
    }
    if (actualSpeed - speedLimit > 15)
    {
        result += (actualSpeed - speedLimit) * 5;
    }
    return result;
}
```

27

Which of the following given speed limit

public static int getFine(int speedLimit,
 int actualSpeed)
{
 I
 int result = 0;
 int diff = actualSpeed - speedLimit;
 if (diff > 0 && diff <= 15)
 {
 II
 result = diff * 5;
 }
 else if (diff > 0)
 {
 result = diff * 10;
 }
 return result;
}

I, II, III

II, III

III

I, II

I, II

Directions ▾

```
else if (diff > 0)
{
    result = diff * 10;
}
return result;
```



27

Which of the following correctly completes the code above?

III.

```
public static int getFine(int speedLimit,
                           int actualSpeed)
```

```
{
    int result = 0;
    int diff = actualSpeed - speedLimit;
    if (diff > 0)
    {
        if (diff > 15)
        {
            result = diff * 10;
        }
        else
        {
            result = diff * 5;
        }
    }
    return result;
}
```

A I only

B II only

C III only

D I and II only

E I, II, and III



Annotate



Reference



Help



More



27

Which of the implementations of the `getFine` method will return the correct value for a given speed limit and actual speed?

- (A) I only
- (B) II only
- (C) III only
- (D) I and II only
- (E) I, II, and III

following are intended as possible implementations of the getFine method. Assume speedLimit and actualSpeed are both greater than 0.

```
public static int getFine(int speedLimit,  
                         int actualSpeed)  
{  
    int result = 0;  
    if (actualSpeed > speedLimit)  
    {  
        result = (actualSpeed - speedLimit) * 5;  
    }  
    if (actualSpeed - speedLimit > 15)  
    {  
        result += (actualSpeed - speedLimit) * 5;  
    }  
    return result;  
}
```

26:04

Hide

AP Comp. Sci. A

Directions ▾

28

Which of the f
method will w

The following method is intended to print a statement when data has exactly five elements.
The parameter data may be null.

```
public void check5(int[] data)
{
    if ( /* missing expression */ )
    {
        System.out.println("Five elements");
    }
}
```

A

data

B

data

C

data

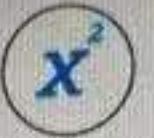
D

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More

28

Which of the following should be used to replace `/* missing expression */` so that the method will work as intended?

(A)

`data == null && data.length == 5`

(B)

`data == null || data.length == 5`

(C)

`data == null && data.length != 5`

(D)

`data != null && data.length == 5`

(E)

`data != null || data.length == 5`

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Help



More

28



Which of the following should be used to replace */* missing expression */* so that the method will work as intended?

(A)

```
data == null && data.length == 5
```

(B)

```
data == null || data.length == 5
```

(C)

```
data == null && data.length != 5
```

(D)

```
data != null && data.length == 5
```

(E)

```
data != null || data.length != 5
```

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Consider the following class declarations.

```
public class Computer
{
    private String model;

    public Computer(String m)
    {
        /* implementation not shown */
    }

    public String getInfo()
    {
        return "Model: " + model;
    }
}

public class Laptop extends Computer
{
    private double weight;

    public Laptop(String m, double w)
    {
        /* implementation not shown */
    }
}
```

[Hide](#)

AP Comp. Sci. A

Directions ▾

```
public Computer(String m)
{
    /* implementation not shown */
}

public String getInfo()
{
    return "Model: " + model;
}

public class Laptop extends Computer
{
    private double weight;

    public Laptop(String m, double w)
    {
        /* implementation not shown */
    }

    public String getInfo()
    {
        return /* missing expression */ +
            " Weight: " + weight;
    }
}
```

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29

Which
/* mis-
execut

A

B

C

D

E



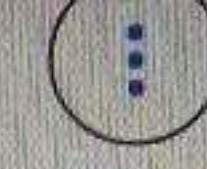
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Help



More



29

Which of the following can be used as a replacement for
/* missing expression */ so that the Computer and Laptop classes will compile and
execute without any error?

A "Model: " + m

B "Model: " + model

C getInfo()

D super.getInfo()

E getInfo(super)

AP Comp. Sci. A

Directions ▾



Consider the following classes and relationships among the classes. Each class includes a no-argument constructor and other instance variables and methods.

- The Poodle class is a subclass of the Dog class.
- The Dog class is a subclass of the Animal class.
- The serviceAnimal class is also a subclass of the Animal class.

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Help



More

30

Which of the following statements could appear in a method in a class named `Tester` without causing a compiler error?

(A)

```
Animal a1 = new Dog();
```

(B)

```
Dog a2 = new ServiceAnimal();
```

(C)

```
Poodle a3 = new Dog();
```

(D)

```
ServiceAnimal a4 = new Animal();
```

(E)

```
ServiceAnimal a5 = new Poodle();
```

Each class includes a no-

S.

AP Comp. Sci. A

Directions ▾

Consider the following class declaration.

```
public class ClassOne
{
    public void printSomething(int[] iArr)
    {
        System.out.print(iArr[0] + iArr[1]);
    }

    public void printSomething(boolean[ ] bArr)
    {
        System.out.print(bArr[0] + " " + bArr[1]);
    }
}
```

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Hide



31

Assume that classOne variable `class1` has been declared and instantiated as a `ClassOne` object in a code segment in another class.

What, if anything, will be printed as a result of the following method calls?

- A call to the `printSomething` method on the `class1` object with an `int` array containing the values `6` and `7`, in that order
- A call to the `printSomething` method on the `class1` object with a `boolean` array containing the values `true` and `false`, in that order

A 13falsetrue

B 13truefalse

C 67falsetrue

D 67truefalse

E Nothing is printed. A compile-time error occurs because there are two `printSomething` methods in the `classOne` declaration.



Consider the following class declaration.

```
public class StringChanger
{
    private String addonString;

    public StringChanger(String str)
    {
        addonString = str;
    }

    /** Precondition: 0 <= low < high */
    public String alteration(int low, int high,
                            String newString)

    {
        String str = newString + addonString;
        String result = "";

        if (high <= str.length())
        {
            result = str.substring(low, high);
        }

        return result;
    }
}
```

AP Comp. Sci. A

Directions ▾

```
public class StringChanger
{
    private String addonString;

    public StringChanger(String str)
    {
        addonString = str;
    }

    /** Precondition: 0 <= low < high */
    public String alteration(int low, int high,
                            String newString)
    {
        String str = newString + addonString;
        String result = "";

        if (high <= str.length())
        {
            result = str.substring(low, high);
        }

        return result;
    }
    // There are no other methods
    // or constructors.
}
```



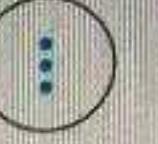
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More



32

Consider a code segment in another class that declares and instantiates a `StringChanger` object `value1`, with "art" passed to the constructor.

What is returned as a result of calling the `alteration` method on the `value1` object with parameters 1, 3, and "modern", in that order?

A

""

B

"od"

C

"ode"

D

"rt"

E

"rtm"



Consider the following method.

```
public void indirect(ArrayList<Integer> aList)
{
    for (int i = 0; i < aList.size(); i++)
    {
        if (aList.get(aList.get(i)) == i)
        {
            aList.set(i, 5);
        }
        else
        {
            aList.set(i, 6);
        }
    }
}
```

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3

The
or
me



15:39

Hide



33

The `indirect` method is called with an `ArrayList` containing the values 3, 2, 1, and 0, in that order. Which of the following represents the contents of the `ArrayList` after executing the method?

(A) [6, 6, 6, 6]

(B) [6, 6, 5, 5]

(C) [5, 6, 5, 6]

(D) [5, 5, 6, 6]

(E) [5, 5, 5, 5]

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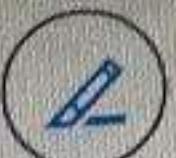
Directions ▾



Consider the following method.

```
public void mystery(ArrayList<Integer> aList)
{
    for (int i = aList.size() - 1; i >= 0; i--)
    {
        int val = aList.remove(i);
        aList.add(val);
    }
}
```

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Help



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More



34

The `mystery` method is called with an `ArrayList` containing the values 1, 2, 3, and 4, in that order. Which of the following describes the contents of the `ArrayList` after executing the method?

(A) The `ArrayList` is empty.

(B) [1, 2, 3, 4]

(C) [4, 3, 2, 1]

(D) [1, 2, 3, 4, 4, 3, 2, 1]

(E) [4, 3, 2, 1, 1, 2, 3, 4]

Directions ▾



Consider the following class definitions.

```
public class Cow
{
    private int yearOfBirth;
    private int weightAtBirth;

    public Cow(int y, int w)
    { /* implementation not shown */ }

    public void speak()
    {
        System.out.print("Moo ");
    }
}

public class Jersey extends Cow
{
    public Jersey(int y, int w)
    { /* implementation not shown */ }

    public void speak()
    {
        super.speak();
        super.speak();
    }
}
```

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Directions ▾

```
private int weightAtBirth;

public Cow(int y, int w)
{ /* implementation not shown */ }

public void speak()
{
    System.out.print("Moo ");
}

public class Jersey extends Cow
{
    public Jersey(int y, int w)
    { /* implementation not shown */ }

    public void speak()
    {
        super.speak();
        super.speak();
    }
}
```

Consider the following code segment, which appears in a class other than Cow or Jersey.

```
Cow elise = new Jersey(2018, 62);
elise.speak();
```

35

Wha

A

B

C

D

E

35

What, if anything, will be printed as a result of executing the code segment?

(A) Moo

(B) Moo Moo

(C) Moo Moo Moo

(D) Nothing is printed. There will be a compile-time error because a `cow` variable can only reference a `cow` object.

(E) Nothing is printed. There will be a compile-time error because `super` can only be called from the first line of the subclass method.

```
}

public String getAuthor()
{
    return author;
}

public String toString()
{
    return "Biography of " + subject +
        "/n by " + author;
}

public class Autobiography extends Biography
{
    public Autobiography(String a)
    {
        super(a, a);
    }

    public String toString()
    {
        return "Autobiography of " + getAuthor();
    }
}
```

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```
Autobiography("Benjamin Franklin");  
System.out.println(ben);
```

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

A

Autobiography of Benjamin Franklin

B

Biography of Benjamin Franklin
by Benjamin Franklin



C

Nothing is printed. A compile-time error occurs because a `Biography` variable cannot be instantiated as an `Autobiography` object.

D

Nothing is printed. A compile-time error occurs because the `Autobiography` constructor makes an incorrect call to `super`.

E

Nothing is printed. A compile-time error occurs because the `getAuthor` method cannot be called from inside the `Autobiography` class.

Consider the following code segment, which appears in a class other than `Biography` or `Autobiography`.

```
Biography ben = new  
    Autobiography("Benjamin Franklin");  
System.out.println(ben);
```

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

A

Autobiography of Benjamin Franklin

B

Biography of Benjamin Franklin
by Benjamin Franklin

C

Nothing is printed. A compile-time error occurs because a `Biography` variable cannot be instantiated as an `Autobiography` object.

Consider the following method.

```
public int counter(int n)
{
    int result = 0;
    for (int i = 1; i <= n / 2; i++)
    {
        if (n % i == 0)
        {
            result++;
        }
    }
    return result;
}
```

Hide

Annotate

Reference

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More

37

Which of the following values, when used as a parameter to the counter method, will result in a value of 1 being returned?

A 15

B 16

C 17

D 21

E 24

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Directions ▾



Consider the following method, which is intended to create and return a new string where the characters of each adjacent pair in `str` are swapped. For example, if the value of `str` is "abcdef", then the method should return "badcfe".

```
/** Precondition: The length of str is even. */
public String mixUpString(String str)
{
    int i = 0;
    String result = "";

    while (i <= str.length())
    {
        result += str.substring(i + 1, i + 2); // Line 7
        result += str.substring(i, i + 1); // Line 9
        i = i + 2; // Line 10
    }
    return result;
}
```

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where
str is

38

Which of the following changes, if any, should be made so that the `mixUpString` method works as intended?

- (A) Changing the Boolean expression in line 7 to `i < str.length() - 2`
- (B) Changing the Boolean expression in line 7 to `i <= str.length() - 2`
- (C) Changing the statement that starts on line 9 and ends on line 10 to `result += str.substring(i + 2, i + 3);`
- (D) Changing line 14 to `i = i + 1;`
- (E) No change is needed. The method works as intended.



Consider the following method, which is intended to return `true` if arrays `firstArray` and `secondArray` contain the same values in the same order and return `false` otherwise.

```
/** Precondition: firstArray.length ==
 *                  secondArray.length
 */
public boolean arrayMethod(int[] firstArray,
                           int[] secondArray)
{
    int index = 0;

    while (index < firstArray.length)
    {
        if ( /* missing condition */ )
        {
            return false;
        }
        else
        {
            index++;
        }
    }
    return true;
}
```

39

Which of the following can be used to replace
/* missing condition */ so that the method works as intended?

(A)

firstArray == secondArray

(B)

firstArray != secondArray

(C)

firstArray[index] == secondArray[index]

(D)

firstArray[index] != secondArray[index]

(F)

39

Which of the following can be used to replace
/* missing condition */ so that the method works as intended?

(A)

```
firstArray == secondArray
```

(B)

```
firstArray != secondArray
```

(C)

```
firstArray[index] == secondArray[index]
```

(D)

```
firstArray[index] != secondArray[index]
```

(E)

```
firstArray[index] <= secondArray[index]
```

rrays firstArray and
false otherwise.

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40

Consider the following code segment, which is intended to replace every other element of an array of integers with zero, starting with the last element and continuing toward the first element.

```
int[] arr = /* initial values not shown */;  
/* missing for loop header */  
{  
    arr[i] = 0;  
}
```

The following table shows two examples of the intended results of the execution of the code segment.

Initial contents of arr	Contents of arr after the code segment has been executed
{1, 2, 3, 4, 5}	{0, 2, 0, 4, 0}
{1, 2, 3, 4}	{1, 0, 3, 0}

A

B

C

D

Which c

*/ so th



40

Which of the following loop headers could be used to replace */* missing for loop header */* so that the code segment works as intended?

A

```
for (int i = 0;  
     i < arr.length; i = i + 2)
```

B

```
for (int i = arr.length;  
     i > 0; i = i - 2)
```

C

```
for (int i = arr.length - 1;  
     i > 0; i = i - 2)
```

D

```
for (int i = arr.length - 1;
```

lement of an
d the first

on of the code

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05/12/2024
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Single-person usage only



A

```
for (int i = 0;  
     i < arr.length; i = i + 2)
```

other element of an
array toward the first

B

```
for (int i = arr.length;  
     i > 0; i = i - 2)
```

C

```
for (int i = arr.length - 1;  
     i > 0; i = i - 2)
```

D

```
for (int i = arr.length - 1;  
     i >= 0; i = i - 2)
```

E

```
for (int i = arr.length - 1;  
     i >= 0; i = i - 1)
```

Question 40 of 40

Next

Testing Resumes In: 19:54



The Exam Will Continue Soon

When the timer above reaches zero,
your exam will resume automatically.



mahratoshah979@gmail.com
Al Shana
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2	C				
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12	E				
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15	D				
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18	B				
19	C				
20	D				
21	B				
22	B				
23	C				
24	C				
25	E				
26	B				
27	B				
28	D				
29	D				
30	A				
31	D				
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