

Practice Quiz 3

1. Consider the following code segment.

```
/* missing loop header */  
{  
  for (int k = 0; k < 4; k++)  
  {  
    System.out.print(k);  
  }  
  System.out.println();  
}
```

The code segment is intended to produce the following output.

0123

0123

0123

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

1. for (int j = 0; j < 3; j++)
2. for (int j = 1; j < 3; j++)
3. for (int j = 1; j <= 3; j++)

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



Practice Quiz 3

2. Consider the following code segment.

```
System.out.print("Hello System.out.println");
```

```
System.out.print("!!!");
```

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

(A) Hello!!!

(B) Hello System.out.println!!!



(C) Hello
!!!

(D) Hello System.out.println
!!!

(E) Nothing is printed because the text "System.out.println" cannot appear inside a print statement.

-
3. Consider the following code segment.

```
int counter = 0;
```

```
for (int x = 10; x > 0; x--)
```

```
{
```

```
for (int y = x; y <= x; y++)
```

```
{
```

```
counter++; // line 6
```

```
}
```

```
}
```

How many times will the statement in line 6 be executed as a result of running the code segment?



Practice Quiz 3

(A) 0

(B) 1

(C) 10



(D) 11

(E) 20

4. Consider the following code segment.

```
int outerMax = 10;
int innerMax = 5;
for (int outer = 0; outer < outerMax; outer++)
{
    for (int inner = 0; inner <= innerMax; inner++)
    {
        System.out.println(outer + inner);
    }
}
```

How many values will be printed when the code segment is executed?



Practice Quiz 3

(A) 45

(B) 50

(C) 55

(D) 60



(E) 66

5. Consider the following code segment.

```
int x = 3;
int y = -1;
if (x - 2 > y)
{
    x -= y;
}
if (y + 3 >= x)
{
    y += x;
}
```

System.out.print("x = " + x + " y = " + y);

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



Practice Quiz 3

(A) $x = -1$ $y = -1$

(B) $x = 2$ $y = 1$

(C) $x = 3$ $y = 2$

(D) $x = 4$ $y = -1$



(E) $x = 4$ $y = 3$

6. The following code segment is intended to interchange the values of the int variables x and y. Assume that x and y have been properly declared and initialized.

```
int temp = x;
```

```
/* missing code */
```

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

(A) $x = y;$
 $x = temp;$

(B) $x = y;$
 $y = temp;$



(C) $y = x;$
 $x = temp;$

(D) $y = x;$
 $temp = y;$

(E) $y = x;$
 $temp = x;$



Practice Quiz 3

7. The following method is intended to print the number of digits in the parameter `num`.

```
public int numDigits(int num)
{
    int count = 0;
    while (/* missing condition */)
    {
        count++;
        num = count / 10;
    }
    return count;
}
```

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

- ☐ A `count != 0`
- ☐ B `count > 0`
- ☐ C `num >= 0`
- ☒ D `num != 0`
- ☐ E `num == 0`



Practice Quiz 3

8. The following method is intended to return true if and only if the parameter `val` is a multiple of 4 but is not a multiple of 100 unless it is also a multiple of 400. The method does not always work correctly.

```
public boolean isLeapYear(int val)
{
    if ((val % 4) == 0)
    {
        return true;
    }
    else
    {
        return (val % 400) == 0;
    }
}
```

Which of the following method calls will return an incorrect response?

- ☒ A `isLeapYear(1900)`
- ☐ B `isLeapYear(1984)`
- ☐ C `isLeapYear(2000)`
- ☐ D `isLeapYear(2001)`
- ☐ E `isLeapYear(2010)`




Practice Quiz 3

9. Consider the following code segment, which is intended to print the sum of all the odd integers from 0 up to and including 101.

```
int r = 0;
int sum = 0;
/* missing loop header */
{
  if (r % 2 == 1)
  {
    sum += r;
  }
  r++;
}
System.out.println(sum);
```

Which of the following could replace */* missing loop header */* to ensure that the code segment will work as intended?

- ☐ (A) while (r <= 100)
- ☐ (B) while (sum <= 100)
- ☐ (C) while (r < 101)
- ☒ (D) while (r <= 101) 
- ☐ (E) while (sum <= 101)
-

Practice Quiz 3

10. Consider the following code segment.

```
for (int outer = 0; outer < 3; outer++)  
{  
    for (/* missing loop header */)   
    {  
        System.out.print(outer + "" + inner + "_");  
    }  
}
```

Which of the following can be used as a replacement for */* missing loop header */* so that the code segment produces the output 00_01_02_11_12_22_ ?

- ☐ A int inner = 0; inner < 3; inner++
- ☐ B int inner = 1; inner < 3; inner++
- ☐ C int inner = outer - 1; inner < 3; inner++
- ☒ D int inner = outer; inner < 3; inner++
- ☐ E int inner = outer + 1; inner < 3; inner++
-



Practice Quiz 3

11. Consider the following code segment.

```
int count = 0;
for (int x = 1; x <= 3; x++)
{
    /* missing loop header */
    {
        count++;
    }
}
System.out.println(count);
```

Which of the following should be used to replace */* missing loop header */* so that the code segment will print 6 as the value of count ?

- ☐ (A) for (int y = 0; y <= 2; y++)
- ☐ (B) for (int y = 0; y < 3; y++)
- ☐ (C) for (int y = 2; y >= 0; y--)
- ☐ (D) for (int y = 3; y > 0; y--)

☒ (E) for (int y = 0; y < x; y++)



12. Consider the following code segment.


```
int k = 0;
/* missing loop header */
{
    k++;
    System.out.print(k + " ");
}
```

Which of the following can be used as a replacement for */* missing loop header */* so that the code segment prints out the string "1 2 3 4"?



Practice Quiz 3

(A) while (k < 3)

(B) while (k < 4) 

(C) while (k < 5)

(D) while (k <= 4)

(E) while (k <= 5)

13. Consider the following code segment.

```
if (false && true || false)
{
    if (false || true && false)
    {
        System.out.print("First");
    }
    else
    {
        System.out.print("Second");
    }
}
if (true || true && false)
{
    System.out.print("Third");
}
```

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



Practice Quiz 3

- ☐ A First
- ☐ B Second
- ☒ C Third ✓
- ☐ D FirstThird
- ☐ E SecondThird
-



Practice Quiz 3

14. Consider the following code segment.

```
int start = 4;
int end = 5;
boolean keepGoing = true;
if (start < end && keepGoing)
{
    if (end > 0)
    {
        start += 2;
        end++;
    }
    else
    {
        end += 3;
    }
}
if (start < end)
{
    if (end == 0)
    {
        end += 2;
        start++;
    }
    else
    {
        end += 4;
    }
}
```

What is the value of end after the code segment is executed?



Practice Quiz 3

(A) 5

(B) 6



(C) 9

(D) 10

(E) 16



Practice Quiz 3

15. Consider the following code segment.

```
int x = 7;
int y = 4;
boolean a = false;
boolean b = false;
if (x > y)
{
    if (x % y >= 3)
    {
        a = true;
        x -= y;
    }
    else
    {
        x += y;
    }
}
if (x < y)
{
    if (y % x >= 3)
    {
        b = true;
        x -= y;
    }
    else
    {
        x += y;
    }
}
```

What are the values of a, b, and x after the code segment has been executed?



Practice Quiz 3

(A) `a = true, b = true, x = -1`

(B) `a = true, b = false, x = 3`

(C) `a = true, b = false, x = 7`



(D) `a = false, b = true, x = 3`

(E) `a = false, b = false, x = 11`

16. A student has created a `Car` class. The class contains variables to represent the following.

- A `String` variable called `color` to represent the color of the car
- An `int` variable called `year` to represent the year the car was made
- A `String` variable called `make` to represent the manufacturer of the car
- A `String` variable called `model` to represent the model of the car

The object `vehicle` will be declared as type `Car`.

Which of the following descriptions is accurate?

(A) An instance of the vehicle class is `Car`.

(B) An instance of the `Car` object is `vehicle`.

(C) An attribute of the year object is `int`.

(D) An attribute of the vehicle object is `color`.



(E) An attribute of the `Car` instance is `vehicle`.




Practice Quiz 3

17. Consider the following code segment.

```
num += num;
```

```
num *= num;
```

Assume that `num` has been previously declared and initialized to contain an integer value. Which of the following best describes the behavior of the code segment?

- (A) The value of `num` is two times its original value.
 - (B) The value of `num` is the square its original value.
 - (C) The value of `num` is two times the square of its original value.
 - (D) The value of `num` is the square of twice its original value. 
 - (E) It cannot be determined without knowing the initial value of `num`.
-

18. Consider the code segment below.

```
int a = 1988;
```

```
int b = 1990;
```

```
String claim = " that the world's athletes " +  
"competed in Olympic Games in ";
```

```
String s = "It is " + true + claim + a +  
" but " + false + claim + b + ".";
```

```
System.out.println(s);
```

What, if anything, is printed when the code segment is executed?

Practice Quiz 3

- (A) It is trueclaima but falseclaimb.
- (B) It is trueclaim1998 but falseclaim1990.
- (C) It is true that the world's athletes competed in Olympic Games in a but false that the world's athletes competed in Olympic Games in b.
- (D) It is true that the world's athletes competed in Olympic Games in 1988 but false that the world's athletes competed in Olympic Games in 1990. ✓
- (E) Nothing is printed because the code segment does not compile.
-

19. Consider the following code segment, which is intended to print the digits of the two-digit int number num in reverse order. For example, if num has the value 75, the code segment should print 57. Assume that num has been properly declared and initialized.

`/* missing code */`

`System.out.print(onesDigit);`

`System.out.print(tensDigit);`

Which of the following can be used to replace `/* missing code */` so that the code segment works as intended?

- (A) `int onesDigit = num % 10;`
`int tensDigit = num / 10;` ✓
- (B) `int onesDigit = num / 10;`
`int tensDigit = num % 10;`
- (C) `int onesDigit = 10 / num;`
`int tensDigit = 10 % num;`
- (D) `int onesDigit = num % 100;`
`int tensDigit = num / 100;`
- (E) `int onesDigit = num / 100;`
`int tensDigit = num % 100;`
-



Practice Quiz 3

20. Which of the following expressions evaluate to 7 ?

1. $9 + 10 \% 12$
2. $(9 + 10) \% 12$
3. $9 - 2 \% 12$

(A) I only

(B) II only

(C) I and III

(D) II and III



(E) I, II, and III

21. A student has created an OrderedPair class to represent points on an xy -plane. The class contains the following.

- An int variable called x to represent an x -coordinate.
- An int variable called y to represent a y -coordinate.
- A method called printXY that will print the values of x and y.

The object origin will be declared as type OrderedPair.

Which of the following descriptions is accurate?



Practice Quiz 3

- (A) origin is an instance of the printXY method.
- (B) origin is an instance of the OrderedPair class. ✓
- (C) origin is an instance of two int objects.
- (D) OrderedPair is an instance of the origin object.
- (E) printXY is an instance of the OrderedPair class.
-

22. Consider the following code segment.

```
int x = 5;
```

```
x += 6 * 2;
```

```
x -= 3 / 2;
```

What value is stored in x after the code segment executes?

- (A) -1.5
- (B) 1
- (C) 9
- (D) 15.5

(E) 16 ✓




Practice Quiz 3

23. Consider the following code segment, where `k` and `count` are properly declared and initialized int variables.

```
k++;  
k++;  
count++;  
k--;  
count++;  
k--;
```

Which of the following best describes the behavior of the code segment?

- (A) The code segment leaves both `k` and `count` unchanged.
 - (B) The code segment increases both `k` and `count` by 2.
 - (C) The code segment increases `k` by 4 and `count` by 2.
 - (D) The code segment leaves `k` unchanged and increases `count` by 2. 
 - (E) The code segment increases `k` by 2 and leaves `count` unchanged.
-

Practice Quiz 3

24. Consider the following Point2D class.

```
public class Point2D
{
    private double xCoord;
    private double yCoord;

    public Point2D(double x, double y)
    {
        xCoord = x;
        yCoord = y;
    }
}
```

Which of the following code segments, appearing in a class other than Point2D, will correctly create an instance of a Point2D object?

- (A) `Point2D p = (3.0, 4.0);`
- (B) `Point2D p = Point2D(3.0, 4.0);`
- (C) `new p = Point2D(3.0, 4.0);`
- (D) `new Point2D = p(3.0, 4.0);`

(E) `Point2D p = new Point2D(3.0, 4.0);`



25. Consider the following code segment.

```
int a = 10;
int b = 5 * 2;
System.out.print(a == b);
```

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



Practice Quiz 3

- (A) 5
- (B) 10
- (C) `10 == 10`

(D) `true`



(E) `false`

26. Consider the following code segment.

```
int a = 4;  
int b = 5;  
a++;  
b++;  
int c = a + b;  
a -= 1;
```

```
System.out.println(a + c);
```

What is printed when the code segment is executed?

- (A) 9
- (B) 10
- (C) 14

(D) 15



(E) 25



Practice Quiz 3

27. Consider the following code segment.

```
System.out.print("AP");  
System.out.println();  
System.out.println("CS");  
System.out.print("A");
```

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

☐ A) APCSA

☐ B) APCS
A

☐ C) AP
CSA

☒ D) AP
CS
A



AP

☐ E) CS
A

28. Consider the following code segment.

```
int num = 1;  
while (num < 5)  
{  
    System.out.println("A");  
    num += 2;  
}
```

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



Practice Quiz 3

(A) A

(B) AA



(C) AAA

(D) AAAA

(E) AAAAA

29. Consider the following code segment.

```
System.out.print(I do not fear computers. ); // Line 1
```

```
System.out.println(I fear the lack of them.); // Line 2
```

```
System.out.println(--Isaac Asimov); // Line 3
```

The code segment is intended to produce the following output but may not work as intended.

```
I do not fear computers. I fear the lack of them.
```

```
--Isaac Asimov
```

Which change, if any, can be made so that the code segment produces the intended output?

(A) In line 1, print should be changed to println.

(B) In lines 2 and 3, println should be changed to print.

(C) The statement `System.out.println()` should be inserted between lines 2 and 3.

(D) In lines 1, 2, and 3, the text that appears in parentheses should be enclosed in quotation marks.



(E) No change is needed; the code segment works correctly as is.



Practice Quiz 3

30. Consider the following code segment.

```
System.out.print(*); // Line 1
```

```
System.out.print("*"); // Line 2
```

```
System.out.println(); // Line 3
```

```
System.out.println("*"); // Line 4
```

The code segment is intended to produce the following output, but may not work as intended.

```
**
```

```
*
```

Which line of code, if any, causes an error?

☒ A Line 1



☐ B Line 2

☐ C Line 3

☐ D Line 4

☐ E The code segment works as intended.