U1-4_7   Name

1. Consider the following method.

   public double puzzle(int x)
   {
   Double y = x / 2.0;
   y /= 2;

   return y.doubleValue();
   }

   Assume that the method call puzzle(3) appears in a method in the same class as puzzle. What value is returned as a result of the method call?

   (A) 0.0

   (B) 0.5

   (C) 0.75

   (D) 1.0

   (E) 1.5

2. Which of the following statements assigns a random integer between 1 and 10, inclusive, to rn ?

   (A) int rn = (int) (Math.random()) * 10;

   (B) int rn = (int) (Math.random()) * 10 + 1;

   (C) int rn = (int) (Math.random() * 10);

   (D) int rn = (int) (Math.random() * 10) + 1;

   (E) int rn = (int) (Math.random() + 1) * 10;

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3. Consider the following code segment, which is intended to assign to num a random integer value between min and max, inclusive. Assume that min and max are integer variables and that the value of max is greater than the value of min.

double rn = Math.random();

int num = /* missing code */;

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

(A) (int) (rn * max) + min

(B) (int) (rn * max) + min - 1

(C) (int) (rn * (max - min)) + min

(D) (int) (rn * (max - min)) + 1

(E) (int) (rn * (max - min + 1)) + min

4. A school that does not have air conditioning has published a policy to close school when the outside temperature reaches or exceeds 95°F. The following code segment is intended to print a message indicating whether or not the school is open, based on the temperature. Assume that the variable degrees has been properly declared and initialized with the outside temperature.

if (degrees > 95)

{

System.out.println("School will be closed due to extreme heat");

}

else

{

System.out.println("School is open");

}

Which of the following initializations for degrees, if any, will demonstrate that the code segment may not work as intended?

A degrees = 90;

B degrees = 94;

C degrees = 95;

D degrees = 96;

E The code will work as intended for all values of degrees.

---

5. Consider the following code segment.

```
int x = 7;
if (x < 7)
{
x = 2 * x;
}
if (x % 3 == 1)
{
x = x + 2;
}
System.out.print(3 * x);
```

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

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(A) 7

(B) 9

(C) 14

(D) 21

(E) 27

---

6. Consider the following code segment.

```
double regularPrice = 100;
boolean onClearance = true;
boolean hasCoupon = false;
double finalPrice = regularPrice;
if(onClearance)
{
finalPrice -= finalPrice * 0.25;
}
if(hasCoupon)
{
finalPrice -= 5.0;
}
System.out.println(finalPrice);
```

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

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(A) 20.0

(B) 25.0

(C) 70.0

(D) 75.0

(E) 95.0

---

7. A student has created a Song class. The class contains the following variables.
   • A String variable called artist to represent the artist name
   • A String variable called title to represent the song title
   • A String variable called album to represent the album title
   The object happyBirthday will be declared as type Song.
   Which of the following statements is true?

(A) artist, title, and album are instances of the Song class.

(B) happyBirthday is an instance of three String objects.

(C) happyBirthday is an instance of the Song class.

(D) Song is an instance of the happyBirthday object.

(E) Song is an instance of three String objects.

---

8. Which of the following statements stores the value 3 in x ?

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(A) int x = 4 / 7;

(B) int x = 7 / 3;

(C) int x = 7 / 4;

(D) int x = 5 % 8;

(E) int x = 8 % 5;

9. Consider the following method.

```
public String wordPlay(String word)
{
String str = "";
for (int k = 0; k < word.length(); k++)
{
if (k % 3 == 0)
{
str = word.substring(k, k + 1) + str;
}
}
return str;
}
```

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

System.out.println(wordPlay("Computer Science"));

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

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A C

B ci tm

C eeStm

D ncepC

E eeSepC

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10. Consider the following class definition.

```
public class Student
{
private int studentID;
private int gradeLevel;
private boolean honorRoll;

public Student(int s, int g)
{
studentID = s;
gradeLevel = g;
honorRoll = false;
}

public Student(int s)
{
studentID = s;
gradeLevel = 9;
honorRoll = false;
}
}
```

Which of the following code segments would successfully create a new Student object?

1. Student one = new Student(328564, 11);

2. Student two = new Student(238783);

3. int id = 392349;

int grade = 11;

Student three = new Student(id, grade);

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(A) I only

(B) II only

(C) III only

(D) I and II only

(E) I, II, and III

11. The price per box of ink pens advertised in an office supply catalog is based on the number of boxes ordered. The following table shows the pricing.

Number of Boxes	Price per Box
1 up to but not including 5	$5.00
5 up to but not including 10	$3.00
10 or more	$1.50

The following incomplete method is intended to return the total cost of an order based on the value of the parameter numBoxes.

```java
/** Precondition: numBoxes > 0 */
public static double getCost(int numBoxes)
{
  double totalCost = 0.0;

  /* missing code */

  return totalCost;
}
```

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

```java
I.  if (numBoxes >= 10)
    {
      totalCost = numBoxes * 1.50;
    }
    if (numBoxes >= 5)
    {
      totalCost = numBoxes * 3.00;
    }
    if (numBoxes > 0)
    {
      totalCost = numBoxes * 5.00;
    }


II. if (numBoxes >= 10)
    {
      totalCost = numBoxes * 1.50;
    }
    else if (numBoxes >= 5)
    {
      totalCost = numBoxes * 3.00;
    }
    else
    {
      totalCost = numBoxes * 5.00;
    }


III. if (numBoxes > 0)
     {
       totalCost = numBoxes * 5.00;
     }
     else if (numBoxes >= 5)
     {
       totalCost = numBoxes * 3.00;
     }
     else if (numBoxes >= 10)
     {
       totalCost = numBoxes * 1.50;
     }
```

A I only

B II only

C III only

D I and II

E II and III

---

12. Consider the following class definition.
    ```
    public class Thing
    {
    public void talk()
    {
    System.out.print("Hello ");
    }

    public void name()
    {
    System.out.print("my friend");
    }

    public void greet()
    {
    talk();
    name();
    }
    /* Constructors not shown */
    }
    ```
    Which of the following code segments, if located in a method in a class other than Thing, will cause the message "Hello my friend" to be printed?

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(A)
Thing a = new Thing();
Thing.talk();
Thing.name();

(B)
Thing a = new Thing();
Thing.greet();

(C)
Thing a = new Thing();
a.talk();

(D)
Thing a = new Thing();
a.greet();

(E)
Thing a = new Thing();
a.name();
a.talk();

---

13. Consider the following method.

public int timesTwo (int n)
{
return n * 2;
}

The following code segment appears in a method in the same class as the timesTwo method.

Integer val = 10;

int result1 = timesTwo(val);

Integer result2 = result1;

System.out.print(result2);

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

(A) 10

(B) 20

(C) Nothing; the code segment will not compile because timesTwo cannot accept an Integer parameter.

(D) Nothing; the code segment will not compile because the value returned by timesTwo cannot be assigned to result1.

(E) Nothing; the code segment will not compile because the int variable result1 cannot be assigned to the Integer variable result2.

---

14. Consider the following statement.

boolean x = (5 < 8) == (5 == 8);

What is the value of x after the statement has been executed?

(A) 3

(B) 5

(C) 8

(D) true

(E) false

---

15. Consider the following method.

```
public static String changeStr(String str)
{
String result = "";
for (int i = str.length() - 1; i >= str.length() / 2; i -= 2)
{
result += str.substring(i, i + 1);
}
return result;
}
```

What value is returned as a result of the method call changeStr("12345") ?

(A) "4"

(B) "53"

(C) "531"

(D) "543"

(E) "54321"

16. Consider the following Boolean expression in which the int variables x and y have been properly declared and initialized.

(x <= 10) == (y > 25)

Which of the following values for x and y will result in the expression evaluating to true ?

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(A) x = 8 and y = 25

(B) x = 10 and y = 10

(C) x = 10 and y = 30

(D) x = 15 and y = 30

(E) x = 25 and y = 30

---

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

```
System.out.println(404 / 10 * 10 + 1);
```

(A) 4

(B) 5

(C) 41

(D) 401

(E) 405

---

18. Consider the following code segment.

for (int j = 1; j < 10; j += 2)
{
System.out.print(j);
}

Which of the following code segments will produce the same output as the code segment above?

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A
```
int j = 1;
while (j < 10)
{
j += 2;
System.out.print(j);
}
```

B
```
int j = 1;
while (j < 10)
{
System.out.print(j);
j += 2;
}
```

C
```
int j = 1;
while (j <= 10)
{
j += 2;
System.out.print(j);
}
```

D
```
int j = 1;
while (j >= 10)
{
j += 2;
System.out.print(j);
}
```

E
```
int j = 1;
while (j >= 10)
{
System.out.print(j);
j += 2;
}
```

19. Consider the following class.

```
public class WindTurbine
{
private double efficiencyRating;
public WindTurbine()
{
efficiencyRating = 0.0;
}
public WindTurbine(double e)
{
efficiencyRating = e;
}
}
```

Which of the following code segments, when placed in a method in a class other than WindTurbine, will construct a WindTurbine object wt with an efficiencyRating of 0.25 ?

(A) WindTurbine wt = new WindTurbine(0.25);

(B) WindTurbine wt = 0.25;

(C) WindTurbine wt = new WindTurbine();
    wt = 0.25;

(D) WindTurbine wt = new WindTurbine();
    wt.efficiencyRating = 0.25;

(E) new WindTurbine wt = 0.25;

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20. Consider the following methods, which appear in the same class.

```
public void printSum(int x, double y)
{
System.out.println(x + y);
}

public void printProduct(double x, int y)
{
System.out.println(x * y);
}
```

Consider the following code segment, which appears in a method in the same class as printSum and printProduct.

```
int num1 = 5;
double num2 = 10.0;
printSum(num1, num2);
printProduct(num1, num2);
```

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

(A) 15
    50

(B) 15
    50.0

(C) 15.0
    50

(D) 15.0
    50.0

(E) Nothing is printed because the code does not compile.