

AP COMPUTER SCIENCE - TEST #1
SECTION I

Number of Questions — 16
Percent of total test grade — 50

Directions: Determine the answer to each of the following questions or incomplete statements, using the available space for any necessary scratch work. Then decide which is the best of the choices given and fill in the corresponding oval on the answer sheet. No credit will be given for anything written in the examination booklet (these pages). Do not spend too much time on any one problem.

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1. What is a *variable*?

- (A) A syntactic structure that controls other statements.
- (B) The part of a Java program where we can use the variable.
- (C) A memory location with a name and a type that stores a value.
- (D) Combining several Strings into a single String, or combining a String with other data to into a new, longer String.
- (E) The order in which Java evaluates the operations in an expression.

2. What is *operator precedence*?

- (A) A syntactic structure that controls other statements.
- (B) The part of a Java program where we can use the variable.
- (C) A memory location with a name and a type that stores a value.
- (D) Combining several Strings into a single String, or combining a String with other data to into a new, longer String.
- (E) The order in which Java evaluates the operations in an expression.

3. What is the *scope* of a variable?

- (A) A syntactic structure that controls other statements.
- (B) The part of a Java program where we can use the variable.
- (C) A memory location with a name and a type that stores a value.
- (D) Combining several Strings into a single String, or combining a String with other data to into a new, longer String.
- (E) The order in which Java evaluates the operations in an expression.

4. What value does the following expression *evaluate* to?

$$(5 + 7) \% 8$$

- (A) 4
- (B) 2
- (C) 1.5
- (D) 1
- (E) 0

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5. Which of the following correctly *assigns* a value to the variable `x` ?

- (A) `x int = 5;`
- (B) `int x;`
- (C) `x = 5;`
- (D) `int x`
- (E) `x = 5`

6. Which of the following correctly *declares* a variable `x` of type `int` ?

- (A) `x int = 5;`
- (B) `int x;`
- (C) `x = 5;`
- (D) `int x`
- (E) `x = 5`

7. Consider the following code segment:

```
int x = 1;  
x++;  
x++;  
x *= 3;  
x++;
```

What is the value of `x` after this code segment has executed?

- (A) 1
- (B) 3
- (C) 9
- (D) 10
- (E) 11

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8. Consider the following code segment:

```
int x = 1;  
int y = 8;  
int z = x + y;  
x = z / 4;  
y = x + 1;  
z += y;
```

What is the value of `z` after this code segment has executed?

- (A) 13
 - (B) 12.25
 - (C) 1
 - (D) 8
 - (E) 12
9. What value does the following expression evaluate to?
- $$(1 + 2.0 + 3) / 4$$
- (A) 1
 - (B) 1.5
 - (C) 2
 - (D) "12.034"
 - (E) Nothing, because Java expressions cannot mix `int` and `double` types.
10. What value does the following expression evaluate to?

$$1 + 2 + 3 + "4" + 5 + 6$$

- (A) 21
- (B) 123456
- (C) "6456"
- (D) "123456"
- (E) Nothing, because Java expressions cannot mix `int` and `String` types.

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11. Consider the following code segment:

```
for (int i = 2; i <= 8; i += 2) {  
    System.out.print(i + ", ");  
}  
System.out.println("Whom do we appreciate?");
```

What is output when this code segment is executed?

- (A) Hello, world.
- (B) 1, 2, 3, 4, Whom do we appreciate?
- (C) 4, 3, 2, 1, Whom do we appreciate?
- (D) 2, 4, 6, 8, Whom do we appreciate?
- (E) 8, 6, 4, 2, Whom do we appreciate?

12. Consider the following code segment:

```
int x = 1;  
double y = x;  
y = y / 2;  
int z = (int)(y + 1.6);
```

What is the value of `z` after this code segment has executed?

- (A) 0
- (B) 1
- (C) 2
- (D) 3
- (E) 4

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13. Consider the following code segment:

```
for (int i = 1; i <= 3; i++)  
    System.out.println("Hey");  
    System.out.println("ya!");
```

What is output when this code segment is executed? *Hint: curly braces { } are missing.*

- (A) Hey
ya!
Hey
ya!
Hey
ya!
- (B) Hey ya! Hey ya! Hey ya!
- (C) Hey
ya!
ya!
ya!
- (D) Hey
Hey
Hey
ya!
- (E) Hello, world.

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14. Consider the following complete program:

```
public class MyStars {  
  
    public static void printStar() {  
        System.out.println(" * ");  
    }  
  
    public static void loopStars() {  
        for (int i = 0; i < 2; i++) {  
            for (int j = 1; j <= i; j++) {  
                printStar();  
            }  
        }  
    }  
  
    public static void main(String[] args) {  
        loopStars();  
    }  
}
```

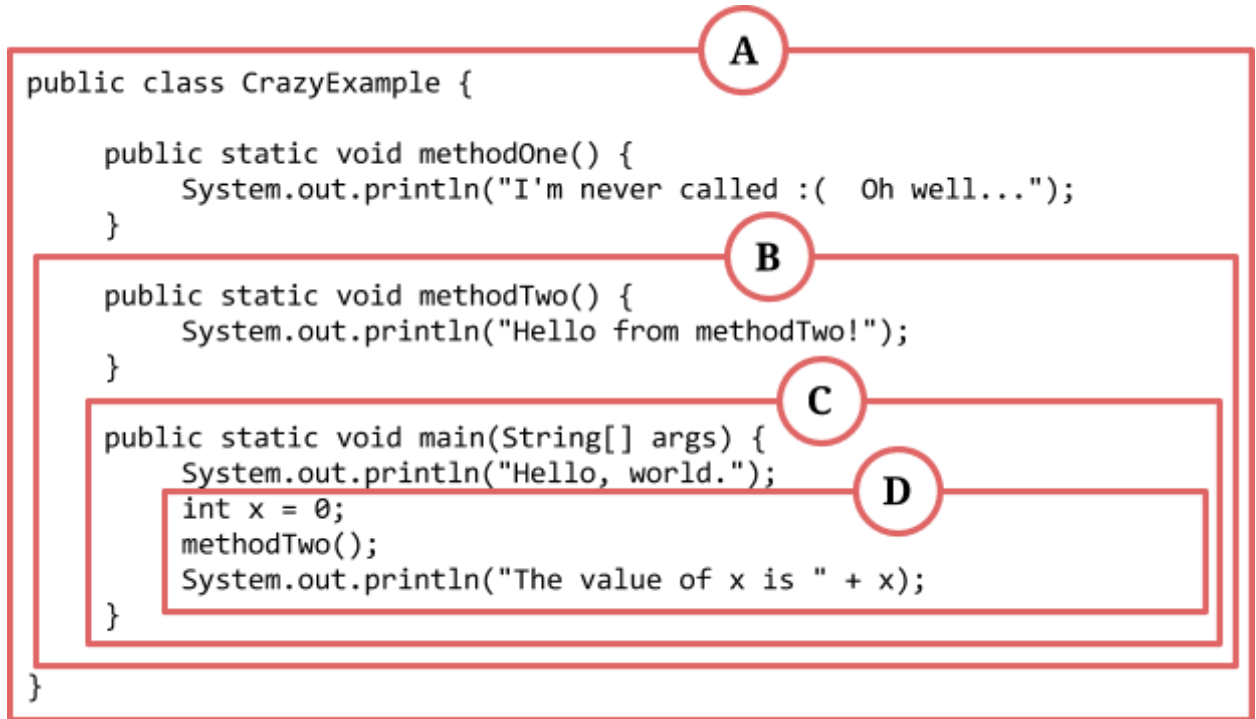
How many stars * are printed to the console when this program is executed?

- (A) None
- (B) 1
- (C) 2
- (D) 6
- (E) 10

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15. Consider the following code segment:



What is the *scope* of the variable `x` ?

- (A) The area labelled **A**.
- (B) The area labelled **B**.
- (C) The area labelled **C**.
- (D) The area labelled **D**.
- (E) None, because the variable `x` has no scope.

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16. Consider the following complete program:

```
public class PrintSquaresAndCubes {  
  
    public static void main(String[] args) {  
  
        for (int i = 1; i <= 10; i++) {  
            System.out.println(  
                i + " squared is " + (i * i));  
        }  
  
        for (int i = 1; i <= 10; i++) {  
            System.out.println(  
                i + " cubed is " + (i * i * i));  
        }  
    }  
}
```

Suppose we add the following CLASS_CONSTANT to the program:

```
public static final int MAX_VALUE = 10;
```

What is the most appropriate use of MAX_VALUE?

- (A) To replace the value 10 in the `for` loop, so we can change the output of the program more easily by adjusting MAX_VALUE.
- (B) To replace method header `public static void main(String[] args)`, because the program will become shorter.
- (C) To replace the expression `(i * i * i)`, which is too complicated for a simple program.
- (D) To replace the class header `public class PrintSquaresAndCubes`, which has too many capital letters in it.
- (E) Hello, world.

END OF SECTION I.