

CSAP Chapter 1 – 4 Sample AP Questions

1. Consider the following loop, where n is some positive integer.

```
for (int i = 0; i < n; i += 2)
{
    if ( /* test */ )
        /* perform some action */
}
```

In terms of n , which Java expression represents the maximum number of times that `/* perform some action */` could be executed?

- (A) $n / 2$
- (B) $(n + 1) / 2$
- (C) n
- (D) $n - 1$
- (E) $(n - 1) / 2$

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2. The boolean expression `a[i] == max || !(max != a[i])` can be simplified to

- (A) `a[i] == max`
- (B) `a[i] != max`
- (C) `a[i] < max || a[i] > max`
- (D) `true`
- (E) `false`

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3. Consider the code segment

```
if (n == 1)
    k++;
else if (n == 4)
    k += 4
```

Suppose that the given segment is rewritten in the form

```
if ( /* condition */ )
    /* assignment statement */
```

Given that n and k are integers and that the rewritten code performs the same task as the original code, which of the following could be used as

(1) `/* condition */` and (2) `/* assignment statement */`

- | | |
|---|----------------------------|
| (A) (1) <code>n == 1 && n == 4</code> | (2) <code>k += n</code> |
| (B) (1) <code>n == 1 && n == 4</code> | (2) <code>k += 4</code> |
| (C) (1) <code>n == 1 n == 4</code> | (2) <code>k += 4</code> |
| (D) (1) <code>n == 1 n == 4</code> | (2) <code>k += n</code> |
| (E) (1) <code>n == 1 n == 4</code> | (2) <code>k = n - k</code> |

4. Which of the following pairs of declarations will cause an error message?

- I. `double x = 14.7;`
`int y = x;`
- II. `double x = 14.7;`
`int y = (int) x;`
- III. `int x = 14;`
`double y = x;`

- (A) None
 - (B) I only
 - (C) II only
 - (D) III only
 - (E) I and III only
-

5. What output will be produced by

```
System.out.print ("\\* This is not\n a comment *\\");
```

- (A) `* This is not a comment *`
 - (B) `* This is not a comment *\\`
 - (C) `* This is not
a comment *`
 - (D) `* This is not
a comment*\\`
 - (E) `* This is not
a comment *\\`
-

6. What value is stored in result if

```
int result = 13 - 3 * 6 / 4 % 3;
```

- (A) -5
- (B) 0
- (C) 13
- (D) -1
- (E) 12

7. Refer to the following code fragment:

```
double answer = 13 / 5;  
System.out.println ("13 / 5 = " + answer);
```

The output is

13 / 5 = 2.0

The programmer intends the output to be

13 / 5 = 2.6

Which of the following replacements for the first line of code will not fix the problem?

- (A) double answer = (double) 13 / 5
 - (B) double answer = 13 / (double) 5;
 - (C) double answer = 13.0 / 5;
 - (D) double answer = 13 / 5.0
 - (E) double answer = (double) (13/5);
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8. Suppose that addition and subtraction had higher precedence than multiplication and division. Then the expression

$2 + 3 * 12 / 7 - 4 + 8$

would evaluate to which of the following?

- (A) 11
 - (B) 12
 - (C) 5
 - (D) 9
 - (E) -4
-

9. Assume that *a* and *b* are integers. The Boolean expression

$!(a \leq b) \&\& (a * b > 0)$

will always evaluate to true given that

- (A) $a = b$
- (B) $a > b$
- (C) $a < b$
- (D) $a > b$ and $b > 0$
- (E) $a > b$ and $b < 0$

10. Consider the following code segment

```
if (n != 0 && x / n > 100)
    statement1;
else
    statement2;
```

If `n` is of type `int` and has a value of 0 when the statement is executed, what will happen?

- (A) A run-time error will occur
 - (B) A syntax error will occur
 - (C) `statement1`, but not `statement2`, will be executed.
 - (D) `statement2`, but not `statement1`, will be executed.
 - (E) Neither `statement1` nor `statement2` will be executed; control will pass to the first statement following the `if` statement.
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11. Consider this program segment:

```
int newNum = 0, temp;
int num = k;
while (num > 10)
{
    temp = num % 10;
    num /= 10;
    newNum = newNum * 10 + temp;
}
System.out.print (newNum);
```

Which is a true statement about the segment?

- I. If `100 < num < 1000` initially, the final value of `newNum` must be in the range `10 < num < 100`.
- II. There is no initial value of `num` that will cause an infinite `while` loop
- III. If `num < 10` initially, `newNum` will have a final value of 0.

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