U1T1, T2, T3 & T4 AP Practice Q's

1. In the code segment below, assume that the `int` variable `n` has been properly declared and initialized. The code segment is intended to print a value that is `1` more than twice the value of `n`.

```
/* missing code */
System.out.print(result);
```

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

I.
```
int result = 2 * n;
result = result + 1;
```
II.
```
int result = n + 1;
result = result * 2;
```
III.
```
int result = (n + 1) * 2;
```

(A) I only

(B) II only

(C) III only

(D) I and III

(E) II and III

2. Consider the following code segment.

```
int a = 5;
int b = 8;
int c = 3;
System.out.println(a + b / c * 2);
```

What is printed as a result of executing this code?

(A) `2`

(B) `6`

(C) `8`

(D) `9`

(E) `14`

3. In the code segment below, assume that the `int` variables `a` and `b` have been properly declared and initialized.

```
int c = a;
int d = b;
c += 3;
d--;
double num = c;
num /= d;
```

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

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(A) The code segment stores the value of `(a + 3) / b` in the variable `num`.

(B) The code segment stores the value of `(a + 3) / (b - 1)` in the variable `num`.

(C) The code segment stores the value of `(a + 3) / (b - 2)` in the variable `num`.

(D) The code segment stores the value of `(a + 3) / (1 - b)` in the variable `num`.

(E) The code segment causes a runtime error in the last line of code because `num` is type `double` and `d` is type `int`.

4. The code segment below is intended to calculate the circumference `c` of a circle with the diameter `d` of `1.5`. The circumference of a circle is equal to its diameter times `pi`.

```
/* missing declarations */
c = pi * d;
```

Which of the following variable declarations are most appropriate to replace `/* missing declarations */` in this code segment?

(A)
```
int pi = 3.14159;
int d = 1.5;
final int c;
```

(B)
```
final int pi = 3.14159;
int d = 1.5;
int c;
```

(C)
```
final double pi = 3.14159;
double d = 1.5;
double c;
```

(D)
```
double pi = 3.14159;
double d = 1.5;
final double c = 0.0;
```

(E)
```
final double pi = 3.14159;
final double d = 1.5;
final double c = 0.0;
```

5. Consider the following code segment.

```
int a = 5;
int b = 4;
int c = 2;
a *= 3;
b += a;
b /= c;
System.out.print(b);
```

What is printed when the code segment is executed?

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(A) `2`

(B) `4`

(C) `9`

(D) `9.5`

(E) `19`

6. Consider the following code segment.

```
int x = 5;
int y = 6;
/* missing code */
z = (x + y) / 2;
```

Which of the following can be used to replace `/* missing code */` so that the code segment will compile?

I. `int z = 0;`
II. `int z;`
III. `boolean z = false;`

(A) I only

(B) II only

(C) I and II only

(D) II and III only

(E) I, II, and III

7. A code segment (not shown) is intended to determine the number of players whose average score in a game exceeds `0.5`. A player's average score is stored in `avgScore`, and the number of players who meet the criterion is stored in the variable `count`.

Which of the following pairs of declarations is most appropriate for the code segment described?

(A)
```
double avgScore;
boolean count;
```

(B)
```
double avgScore;
double count;
```

(C)
```
double avgScore;
int count;
```

(D)
```
int avgScore;
boolean count;
```

(E)
```
int avgScore;
int count;
```

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8. 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;
```

9. 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`.

10. 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?

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(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;
```

11. Which of the following expressions evaluate to `7` ?

I. `9 + 10 % 12`
II. `(9 + 10) % 12`
III. `9 - 2 % 12`

(A) I only

(B) II only

(C) I and III

(D) II and III

(E) I, II, and III

12. 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`

13. 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?

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(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.

14. 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`

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

(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;`