

AP Computer Science Review

1. How do you write the main method of a Java program?
`public static void main(String[] args) {`
`}`
2. What type of errors is thrown when you forget a ; ?
A compile time error. Expected: “;”
3. Why do we use comments?
To describe what’s happening in our programs.
4. What must be done to all variables and why?
Declare. The initial definition to either declare it null or a certain value.
5. How do you declare variables?
`int foo = 10;` or `int foo;`
6. How does JAVA order of operations work?
`1 + 2 * 3 = 1 + (2 * 3)`
7. How does integer division in JAVA work?
Use a forward slash between the original number and divisor as shown:
`int foo = 12 / 6;`
8. When printing, what happens as you mix integer value variable with string statements?
They manifest in the console side by side. For example, you could display the percentage next to a context.
`System.out.println(“Percentage: ” + percentOfIntVariable + “%”);`
Reads: “Percentage: percentOfIntVariable%”
9. What is casting?
Taking an object of one type then turning it into another type.
`foo = foo + addToFoo;`
10. How can you change the value of integer variables?
You just make it equal to another value.
`foo = newValue;`
11. How does interchanging print and println work?
Print prints a value or string on a separate line. Println prints them on the same line.
12. How do basic if logic statements work?

```
if (value == desiredValue) {
    //do something
}
```

13. What is || vs. && in JAVA?

&& means conditional AND. Compares two or more values to another.

|| means conditional OR. Compares a single value to another.

14. How do || and && evaluate in JAVA Boolean statement?

&& returns true if both operands are true.

|| returns true if one value is true and the other(s) is(are) false.

15. How does the logic of if else statements with nested if else using variables work?

```
if (foo == desiredValue) {
    if (foo == secondDesiredValue) {
        //run something
    } else {
        //run alternative to daughter
    }
} else {
    //run alternative to parent
}
```

16. What are the parameter values of for loops and how do they work?

The variable setup: declares the variable that will be used in the for loop.

The test statement: tests whether the variable meets requirements.

The incrementer/decrementer: advances the for loop.

17. When does an else get used in if statements?

To run alternative code if the if statement is false.

18. How does a while loop run?

```
while (foo == true) {
    //run code in this section as long as foo is true.
}
```

19. What is an infinite loop and what prints if an infinite loop occurs?

A loop that does not contain or contains an always true variable test statement, and runs infinitely.

```
for (i=0; i>=0; i++) {
    /*code runs infinitely because i is always greater
    than zero.*/
}
```

20. What are the different ways of incrementing numbers in loop statements?

`i++`: increments one

`i+number`: increments by the value of the number.

21. What are classes?

The main section in a Java file which contains every object in the file. They must be the same name as the filename.

22. What are objects?

Members of a class which contains variables that are either explicitly defined or have functions that change them within the objects.

23. How do you call to have a method on to an object?

You define the object by using:

```
fooObject foo = new fooObject();
```

, then call it's methods using:

```
foo.fooMethod(//return val);
```

24. How are Booleans returned in JAVA?

```
Boolean foo = true;
```

```
if (foo == desiredValue) {  
    foo = true;  
} else {  
    foo = false;  
}  
return foo;
```

25. What is a default constructor?

It is placed at the end of a method that does not contain a return variable.

26. How is the substring method used?

It extracts characters between two indices, then returns the extracted characters as a new string.

27. How is the length method used?

It measures the number of indices in a given string.

```
String str = "foo"  
System.out.println(str.length);
```

Output:

2

28. What order do you write the key words to define a method?

```
public void method() {
```

```
}
```

29. How do you define a method with a return of type int?

```
public method(int = 0) {  
}
```

30. What rules are used in writing the parameters of a method?

If there is no return type, use a pair of parentheses with no values in between after the method name along with the `void` return type before the name to tell the compiler that there is no return type.

31. What is the difference between constructors and methods?

Constructors are what define the beginning and end of a method, wrote as an opening and closing curly brace.

32. How do you write an ArrayList stement to instantiate a given list of numbers?

```
ArrayList foo = new ArrayList();  
foo.add("value1");  
foo.add("value2");
```

33. How do you write a statement to determine the number of elements in an array?

```
String foo = new String[4];  
//defines a length of 5.
```

34. How do you remove elements from an array?

```
String foo = new String[4];  
foo[1] = foo[foo.length - removedElementIndice];
```

35. What happens when you try to "get" an element outside of the array?

It throws an out of bounds exception.

36. What commands can be used to add elements to an array?

```
String foo = new String[4];  
foo[1] = foo[foo.length + newElement];
```

37. How do you print a specific element of an array?

```
String foo = new String[4];  
System.out.println(foo[0]);  
//print the element in position 0.
```

38. How do you write an array to create a list of counting numbers?

```
int foo = new int[10];  
for (i = 0; i <= foo.length; i++) {  
    System.out.println(i);  
}
```

39. What is the difference between the length of an array and the element positions?

The length means the total number of element indices, while the position is the part of an array where a value is located at.

40. When dealing with a nested for loop what is the logical order that printing will happen?

The outer loop controls the number of iterations of the inner loop.