Critical Thinking Chapter 6

2.
The method declaration specifies the method's reference.
The method body contains the code and instructions that are executed when the method is called.

3.
The access modifiers are the keywords used to change the access level of a method. For example: public, protected, private, …

4.
Another word for the access level of a method is visibility.

5.
var1: this variable is declared in the main method so it can be only used in the main method.
var2: this variable is declared as the initial value in the for loop.
var3: this variable is declared in the method() so it can be only used in the method().
var4: this variable is declared as the initial value in the for loop.
Therefore, all variables in the given code are local variables with block scope.

6.
a) public static int getVowels(String string)
b) public static int extractDigit(int number)
c) public static String insertString(String string, int number)

7.
a) The compiler distinguishes one method from another by method signature, for example: the method's name, type, …
b) Yes, two or more methods in the same class can have the same name as long as their method signatures are different, for example drawInt(int number) and drawInt(int start, int end).

8.
a) The return statement is used to terminate the execution of a function and send a value back to the calling statement.
b) A return statement sends back one single value, but it can be a single object that contains multiple pieces of data, for example: an array, a list, …
c) The declaration of a method returning a value is different because it must specify the data type of the value it will return.

9.
There is no error in the code because it runs. However, if we need to print out the doSomething() number, we can rewrite

```
int num = doSomething();
System.out.print(num);
```

11.

a) False. Breaking a task down into methods is called object-oriented abstraction.
b) False. A method call consists of the method declaration in parentheses and any arguments.
c) False. A void method does not return a value.
d) False. An access modifier declares the access level of a method.
e) True.
f) False. Method parameters are enclosed by parentheses “( )”.
g) False. Local variables can be used only by the method they are declared in and can only be accessed within that method.
h) True.
i) False. Method overloading means having multiple methods with the same name but different parameters in a class.
j) True.
k) False. The precondition of a method states the assumptions about the input values (arguments) that the method expects.
l) False. The postcondition of a method describes the guarantees about the state of the system after the method completes.