

1. PI and radius are encapsulated.
2. It must have the same name as the class.
3. The difference between public and private access modifiers is that members that are private are only visible to the class they are in, whilst public members are visible to the client code.
4. The last statement is invalid. The programmer is trying to set a new radius of 5, but the code is wrong. They are trying to call the member "radius", but the TestCircle application cannot see that variable because it is private. Instead, the programmer needs to write `setRadius(5)`; to get what they want.
5.
  - a) Roo
  - b) x
  - c) `getX()`
  - d) `setX()`
  - e) `factor()`
  - f) Roo
  - g) 5
6. A class is a data type that is the "blueprint" for an object, and it defines all the members that will hold data and modify the behavior of an object. An object on the other hand, is an instance or version of a class. It was "built" from the blueprint of the class and can perform tasks.
9.
  - a) z
  - b) x, y
  - c) y
  - d) x
11. The main similarity between overloading and overriding is that there are two methods with the same name involved in the process. However, overriding is different from overloading in that overriding is the act of a subclass overriding a superclass, but overloading is when there are two classes of the same name with different parameters.