Chapter 13 Review Questions

1. A derived class inherits the public and protected members from a base class. The private members are also inherited but cannot be accessed directly.

2. A derived class needs its own constructor, destructor, and assignment operator.

3. If the return type were void then chain assignment could not be used. If the return type were baseDMA instead of baseDMA &, the function would return a new baseDMA object, instead of a reference to a passed baseDMA object. This would be less efficient.

4. The base constructor is called prior to the derived constructor. However, the derived destructor is called prior to the base destructor.

5. Yes, derived classes need their own constructors (even if they are blank).

6. The derived class method would be called since it supersedes the base class methods.

7. The derived class should define its assignment operator if it receives a pointer and allocates memory using `new`. Otherwise, the base assignment operator will copy the class data using memberwise assignment.

8. Yes, the address of derived class objects can be assigned to pointers of the base class.

9. Yes, you can assign an object of a derived class to an object of the base class. However, any members of the derived class that are not included in the base class will not be assigned. The object of a base class can be designed to the object of a derived class if you specify a conversion function.

10. References to a base type can also refer to any class derivations.

11. When the base-class object is passed, the base-class constructor will be called which uses a reference to the base class which can also be used to refer to the derived class (see #10 above). The copy of the object that will be created will contain the base-class members only (any unique derived members will be ignored).

12. Passing an object by reference is more efficient because an extra copy of the object does not have to be created.

13. If head is defined as a regular nonvirtual method, ph->head() will call the base class. If head is defined as a virtual method, ph->head() will call the derived class' method.

14. The kitchen area() function is inaccessible because it is a virtual function and is overridden by the derived version of the function. Also, it seems as if the base class should be house instead of kitchen