Quiz 4 Answers

1. What are the three parts of a Makefile rule?

   A Makefile rule consists of a target, a dependency list, and a command.

2. Give a brief description of what a *target* is with respect to a Makefile rule.

   The target in a Makefile rule is usually the name of a file that is to be made as part of the project.

3. Give a brief description of what a *dependency list* is with respect to a Makefile rule.

   A dependency list is a list of files which must all exist and be up to date in order to create the target.

4. Give an example of a *pseudo-target* that might appear in a Makefile.

   `clean` is a commonly used pseudo-target.

5. A class, `Widget`, has as one of its members a method named `print()` that takes no arguments. A variable of type `Widget` is declared named `temp`. Write the C++ expression to call the `print` function for the object `temp`.

   ```
   temp.print();
   ```

6. What name is given to public methods that are used to retrieve or set the private data members of a class?

   Accessor methods (set and get methods is also an acceptable answer).

   (Next two questions) Given the following:

   ```
   double pi = 3.14159;
   double* piPtr = &pi;
   ```

   Assume that `pi` is stored at address 200 and `piPtr` is stored at address 400.

7. What is the value of `*piPtr`?

   3.14159 (The value of the variable pointed to by `piPtr`, which is the value of the variable `pi`.)

8. What is the value of `piPtr`?

   200 (The address stored in the pointer variable `piPtr`, which is the address of the variable `pi`.)

9. After three passes through the outer loop of a sorting algorithm, an array changes from

26	10	67	54	18	41	30	28

to

10	26	54	67	18	41	30	28

What sorting algorithm is being used to sort the array?

A. Selection sort
B. Insertion sort
C. Bubble sort

The correct answer is insertion sort. The sort will progress as follows (the shaded portion of the array represents the sorted subarray):

Initial array	26	10	67	54	18	41	30	28
End of Pass 1	10	26	67	54	18	41	30	28
End of Pass 2	10	26	67	54	18	41	30	28
End of Pass 3	10	26	54	67	18	41	30	28

10. The binary search algorithm is used to search the following array for the value 59. In the table below, list the values for the subscript variables `low`, `high`, and `mid` for each pass through the algorithm's `while` loop. (There may be fewer than five passes.)

10	19	24	37	42	48	52	59	65	78

The key 59 will be found on the second pass, when `mid == 7`:

Pass	**low**	**high**	**mid**
1	0	9	4
2	5	9	7
3			
4			
5			