AP Computer Science | Quiz 1104 Answers | Name:
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Question 1. What is the difference between a value type (for example, a primitive type) and a reference type (for example, a class type)?

Answer. When a *value type* variable is passed as a parameter, the actual value is copied into a new variable in the target method. Thus the target method has no access to the original value. When a *reference type* variable is passed as a parameter, a pointer to the memory location where the referenced object is stored is passed to the target method. The parameter in the target method points to the same memory location, and thus to the same object, and can potentially change the object.

Examples of value types are the primitive types. Examples of reference types are arrays and classes. □

Question 2. What is the difference between a static variable and an instance variable?

Answer. A *static variable* does not require an instance of a class to be accessed, and is shared by all instances of the class. An *instance variable* requires an instance of a class to be accessed.

In other words, a static variable has the same value for all members of the class, but an instance variable may have a different value for each member of the class. □

Question 3. What is the difference between a private variable and a public variable?

Answer. A private variable may be accessed only by methods in the same class. A public variable may be accessed by methods in other classes. □

Question 4. When comparing two quantities of class type, should we use `==` or `.equals`? What about when comparing two quantities of primitive type?

Answer. The binary operator `==` is used to test if two variables of primitive type are equal. The `.equals` method is used to test if two objects are equivalent. □

Question 5. What is an accessor method? What is a mutator method?

Answer. An *accessor* method is used to access a private variable in a class. A *mutator* method is used to change a private variable in a class. If the variable is named (for example) `data`, it is conventional that the accessor be named `getData` and the mutator (if it exists) be named `setData`. For this reason, these methods are often called *getters* and *setters*. □