

Solutions

2.1 A A method call acts on a particular instance. State changes should satisfy preconditions and postconditions. Polymorphism lets code use a common interface with different implementations when the contract is respected.

2.2 final instance state= $12+8-3=17$ units.

2.3 False. A class is not the same thing as one instance. Inheritance is not automatically better than composition. Merely hiding a field does not prove that all operations preserve valid state.

2.4 encapsulation. encapsulation means Controlling access to state through an interface.

3.1 States are 15 and 20. Rejected withdrawal leaves state unchanged. Instance attributes are independent; validated methods preserve $\text{balance} \geq 0$.