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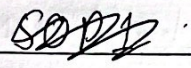
Homework 5

5.1

Output:
42 / 3
84 / 3
3 ~~42~~

① There ~~are~~ is one class variable i.e.
static int counter = 0; as this variable has
the same value for every object at any
given point of processing of the program.
They exist when a class is created.

② This is one instance variable which is
a int aInt = 0; as this variable has different
instances for each and every object that is
created. They exist when any object
is created.

③ In line 25: aHelloWorld 1. setBoth (aHelloWorld2);
                    ↑   ↑   ↑
             calling object   method   Parameter
                               called   (object)

within the setBoth method :

Line 16: aHelloWorld. setState (aInt * 2);
   is equivalent to :
      aHelloWorld2. setState ($42 * 2)

   ↑   ↑   ↑
calling object   method   Parameter
                  called.

Line 26: System.out.println (aHelloWorld1);
                                        ↑
                  object calls toString()

Line 27: System.out.println (aHelloWorld2);
                                        ↑
                  object calls toString()

Line 28: System.out.println (getCounter());
                                        ↑
                  static method is called.

getCounter() is a static method so it can
call a static variable (counter) and static method
can be called within a static method.

④ If we change the access modifier of toString()
   method to private then the program won't
   compile because:
→ toString() method is a built-in method in
   Java which has public as its access
   modifier

→ So when we are overriding the built-in
   method we cannot change the access
   modifier to private as it would change the
   its visibility of the method.

* Rest all methods are absolutely private
   in the program.

⑤ • Whenever we make a new object the default constructor (public HelloWorld()) increases the counter value by 1.

• In line 25:

aHelloWorld1. setBoth (aHelloWorld2);

↑ caller object   ↑ method called   ↑ Parameter (object)

Within the setBoth method, we changed the aInt value of the caller object and then this value is used as a parameter in the setState() method within the setBoth method

counter = 0→1→2→3		aHelloWorld1	
		aInt = 0 → 42	i
			ii
		aHelloworld2	
		aInt = 0 → 84	iii
			iv
aHelloworld1	i		?
aHelloworld2	iii	aInt = 0	v
?	v		vi

Memory Model