Task 4.1P Answer Sheet

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1. How many Counter objects were created?
   There are a total of 2 Counter objects that were created.

2. Variables declared in main() are different to the objects created when we call new. What is the relationship between the declared variables in main and the objects created?
   The declared variables hold references to objects. Modifying the objects through variables will affect the objects themselves, not declared variables in main().

3. Resetting the counter in myCounters[2] also changes the value of the counter in myCounters[0]. Why causes this to happen?
   Because myCounters[2] and myCounters[1] hold references to the same object. Reset counter in any variable will change the value of the counter of the same object, therefore both variables receive the same value of the object.

4. The key difference between memory on the heap compared to the stack and the heap is that the heap holds dynamically allocated memory. What does this mean ?
   Dynamically allocated memory allows programmers to manage memory manually, while memory management in stack is operated by the compiler.

5. On which are objects allocated (heap or stack)? On which are local variables allocated (heap or stack)?
   Objects of the Counter class are stored in heap, while myCounters variables are stored in stack.

6. What does the new() method do when called for a particular class. What does it do and what does it return?
   Firstly, it allocates memory for a new object. Then it invokes the constructor to initialize a new object. Lastly, it returns a reference to the object

7. Draw a diagram showing the locations of the variables and objects in main and their relationships to one another.