Homework (Stacks) Solution

1A.) 45

1B.) 14

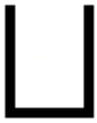
1C.) 6

1D.) 4

2.)

60

3.)



empty stack

4.)

10 (top)
8
6
4
2

5.)

A better way of representing the stacks would be for them to share a single array and then use top two pointers. The two stacks will grow from the two ends and their sizes can thus vary. This is possible since the stacks are of the same type.

Some other space-efficient approaches might be to use dynamic memory and linked lists. One thing to note with linked lists is that the amount of memory needed to store a single node (containing the data part and the next pointer) is greater than a single data type. Therefore, as the number of elements in the stack grows, a linked list implementation will be less efficient than an array based implementation.