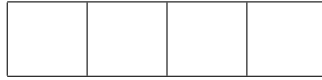


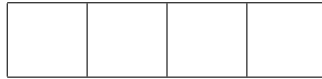
## Stacks and Queues

1. Show the state of the *stack* after the following operations, be sure to indicate the final *top* pointer location

a) **push(3), push(2), push(1)**

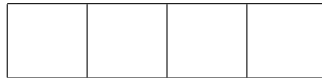


b) **push(3), push(2), push(1), pop(), push(4), pop(), pop(), push(5)**

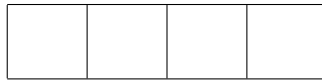


2. Show the state of the *queue* after the following operations, be sure to indicate the final *head* and *tail* pointer locations

a) **enqueue(3), enqueue(2), enqueue(1)**



b) **enqueue(3), enqueue(2), enqueue(1), dequeue(), enqueue(4), dequeue(), enqueue(5), dequeue()**



3. List one advantage and one disadvantage of using a *preallocated*, i.e. fixed size, backing array to implement a stack.