1. Each search log n time, where n is the number of compares it took to get there. Therefore the solution achieves O(log n) time.

def ProblemThree(self,x):

return self.stack.index(x)

print self.stack.index(8)

print self.stack.index(33)

The size of the list in log time is O(n) because n is the number of compares it took to get to the element. Therefore it can also be used as the size.