Last name	
First name	Grad
Group	

Grade	
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Algorithmics
Undergraduate 1^{st} year S1
Final Exam #1 (P1)
7 January 2020 - 13h-15h
Answer Sheets

1	
2	
3	
4	
5	
6	

Answers 1 (Abstract Types: Iterative lists (delete) – 3 points)

1.	Possible preconditions:
2.	Axioms of the operation delete:

Answers 2 (Binary Search: search "path" – 2 points)

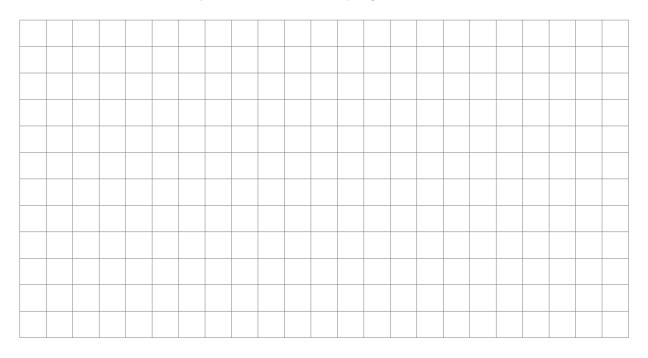
	NO	YES
46 - 65 - 81 - 73 - 70 - 66		
31 - 62 - 90 - 72 - 61 - 66		
36 - 70 - 53 - 40 - 42 - 66		
35 - 51 - 55 - 58 - 61 - 66		

Answers 3 (Test - 1 point)

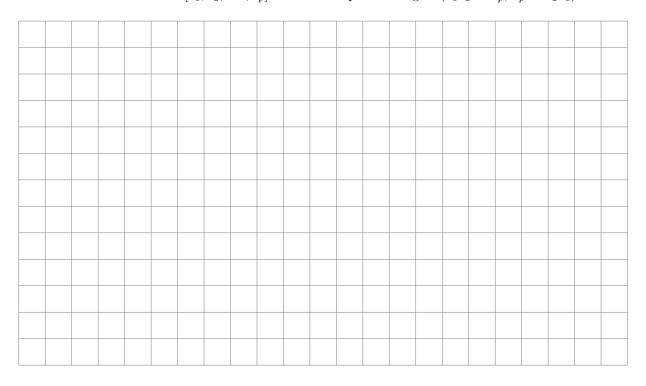
What does test(x , L) do?		

Answers 4 (Integers \leftrightarrow list - 6 points)

1. The function $int_to_list(n, p)$ returns the list of the p digits of n:

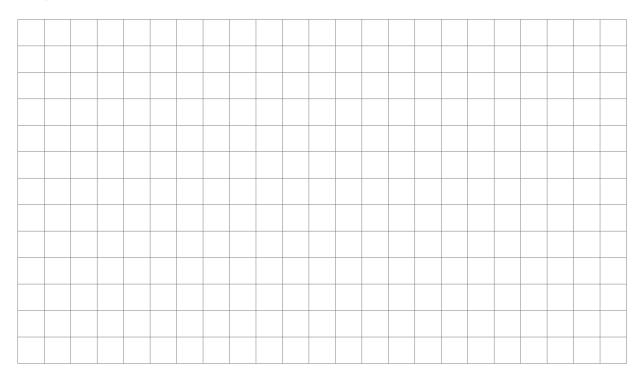


2. The function list_to_ints([d_1, d_2, \cdots, d_p]) returns the pair of integers ($d_1 d_2 \cdots d_p, d_p \cdots d_2 d_1$):



Answers 5 (Histogram and sort – 4 points)

1. The function hist(L) returns the list that represents the histogram of the values in L (L contains only digits):



2. The function sort(L) returns the list L sorted in increasing order (L contains only digits):



Answers 6 (Kaprekar – 5 points)

The function Kaprekar (n, p) performs the Kaprekar routine to the positive p-digit integer n, till it reaches the same value twice. It returns the list of the computed values.

