A k-number is 1,2,3 or 4 digit integer in which at least 1 digit differs from the other digits.
1 digit k-numbers
0 is not a 1 digit k-number , because expanded to 4 digits it is 0000
1 is a 1 digit k-number because expanded to 4 digits it is 0001
11 is a 2-digit k-number because expanded to 4 digits it is 0011
111 is 3-digit k-number because expanded to 4 digits its is 0111
Expanding a number to 4 digits does not change the number's value
Almost all 1,2,3, and 4 digit numbers are k-numbers
0 is not a k-number but 1,2,3,4,5,6,7,8, and 9 are k-numbers
Almost all 2-digit numbers are k-numbers
Almost all 3-digit numbers are k-numbers
Almost all 4-digit numbers are k-numbers
0,00,000,0000 are not k-numbers
1111, 2222, 3333, 4444, 5555, 6666, 7777, 8888, and 9999 are not k-numbers.
Write a function that has an integer parameter and that returns true if its parameter is a k-number and false if its not.
Write a function that has 1 k-number and that returns a copy of its k-number parameter with its digits sorted in ascending order and copy of its k-number with its digits sorted in descending order.
Write a program that generates a k-number and then performs the following steps until the k-number is 6174.
sort the digits of the k-number in descending order
sort the digits of the k-number in ascending order
subtract the smaller number from the larger number
the difference is (always) a k-number

For example 1 is a k-number

1000
0001

0999
9990
0999

8991

9981
1899

8082

8820
0288

8532

8532
2358

6174