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Section 5: Hashing (3 questions)

Question 1

1/1 point (graded)

What is the size of the array needed to store international phone numbers with up to ${\bf 15}$ digits using direct addressing?

O 15	
150	
\circ 10^{15} \checkmark	
$\bigcirc~10^{16}$	
Submit You have used 1 of 1 attempt	

Question 2

1/1 point (graded)

Consider the universal family of hash functions with prime p=17, cardinality m=10:

 $h_{ab}(x) = (ax + b) \pmod{p} \pmod{m}$. A randomly chosen hash function from this universal family turned out to have a = 2, b = 5.

Compute h(14).



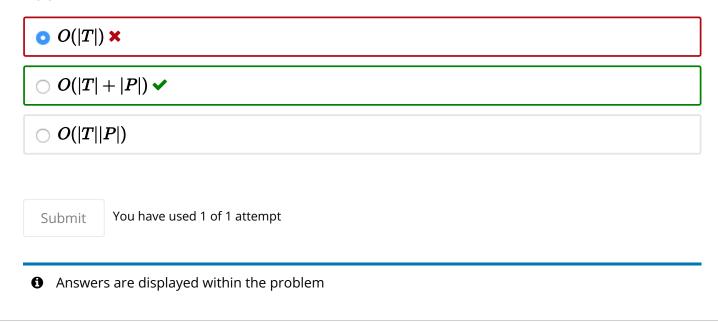
Submit You have used 1 of 1 attempt

Question 3

0/1 point (graded)

What is the average running time of Rabin-Karp's algorithm for text T and pattern P if there are no occurrences of the pattern in the text?

Assume that the prime \boldsymbol{p} used in the algorithm is large enough, so that the number of false alarms during algorithm execution is negligible.



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