

Problem 10.1

②

size $m = 5$ with hash functions $h_1(k) = k \bmod 5$

$h_2(k) = 7k \bmod 8$ Array $\langle 3, 10, 2, 4 \rangle$

step 1 $h_1(3) = 3 \bmod 5 = 3$. Since this position is not used, it is filled with this number

step 1

0	
1	
2	
3	3
4	

step 2 $h_1(10) = 10 \bmod 5 = 0$. Again, this position is free to use, so we input 10 here

step 2

0	10
1	
2	
3	3
4	

step 3 $h_1(2) = 2 \bmod 5 = 2$. Same as before, this position is not occupied, so value gets inserted

step 3

0	10
1	
2	2
3	3
4	

step 4 $h_1(4) = 4 \bmod 5 = 4$. It appears again, this position is free to use. Generally speaking, there was no need to use the other hash function

step 4

0	10
1	
2	2
3	3
4	4

Final result

Pos	Values
0	10
1	
2	2
3	3
4	4

$S_1(3, 7)$
 $S_2(5, 8)$
 $S_3(7, 12)$

choosing
 shortest
 sequence
 $\Rightarrow S_2(5, 8)$
 but this fails since
 the best global solution
 would be $\langle S_1, S_3 \rangle$

1	2	3	4	5	6	7	8	9	10	11	12
											
											
											