[8 pts.] Hashing

Assume a hash set of integer keys with initial table size, m=7, and a hash function, h(k) = (3*k) % m. The hash set uses double-hashing to resolve collisions with h2(k) = m - (k%m). Further assume that when the table reaches a loading factor of 0.5 and it will resize to a new size of 2*m+3 before a new insertion is applied (an insertion may end with a loading factor of >= 0.5 but the next insertion will then cause the resize). For the sequence below, fill out the tables below the contents of the table just before it resizes and after the last insertion. Upon resize, the keys present will be inserted in the new table in the order they appear in the old table.

Insert the following keys: 5, 22, 12, 15, 9, 6

Before Resizing (m=7) [Use only the rows necessary]

Key	h(k)	Probe sequence if necessary (Show sequence of array locations probed ending with final location where the key is placed)
5	**1**	
22	**3**	
12	**1**	**3,5**
15	**3**	**2**

After Resizing (m=17) – Show all keys rehashed in order + newly inserted keys

Key	h(k)	Probe sequence if necessary (Show sequence of array locations probed ending with final location where the key is placed)
5	**15**	
22	**15**	**10**
12	**2**	
15	**11**	
9	**10**	**1**
6	**1**	**12**

Scratch work diagram: