Write regular expressions for the sets in Items 1 to 4.

1. Strings in \{a, b, c\} with at least one a and at least one b

2. All strings of 0’s and 1’s where 10th symbol from end is a 1

3. All strings of 0’s and 1’s where every pair of adjacent 0’s appears before any pair of adjacent 1’s.
   hint: (no pair of adjacent 1’s)(no pair of adjacent 0’s)

4. No occurrence of substring 001

5. Let \( h(0) = a, h(1) = ab, \) and \( h(2) = ba. \)
   
   (a) What are \( h(0120), h(21120), h(01 * 2), \) and \( h(0 + 12)? \)
   
   (b) What are \( h^{-1}(ababa) \) and \( h^{-1}(a(ba)*)? \)