

Determine if there is a solution to the following PCP's (Post Corresponding Problem). Show to the solution if it exists.

- (a) [a,aa], [bb,b], [a,bb]
- (b) [a,aaa], [aab,b], [abaa,ab]
- (c) [aa,aab],[bb,ba],[abb,b]
- (d) [a,ab], [ba,aba],[b,aba],[bba,b]

Apply Post Corresponding Problem algorithm in Python (attached with the answer) and input each pair/domino.

(a):

Type in "100 a#aa bb#b a#bb"

Here's the result:

Input:

100 a#aa bb#b a#bb

Domino 0: ['a', 'aa']

Domino 1: ['bb', 'b']

Domino 2: ['a', 'bb']

Solution to this pcp: [['a', 'aa'], ['a', 'bb'], ['bb', 'b'], ['bb', 'b']]

aabbbb <--- 1st

aabbbb <--- 2nd

Indexes: [0, 2, 1, 1]

(b):

Type in "100 a#aaa aab#b abaa#ab"

Here's the result:

Input:

100 a#aaa aab#b abaa#ab

Domino 0: ['a', 'aaa']

Domino 1: ['aab', 'b']

Domino 2: ['abaa', 'ab']

Solution to this pcp: [['a', 'aaa'], ['aab', 'b']]

aaab <--- 1st

aaab <--- 2nd

Indexes: [0, 1]

(c):

Type in "100 aa#aab bb#ba abb#b"

Here's the result:

Input:

100 aa#aab bb#ba abb#b

Domino 0: ['aa', 'aab']

Domino 1: ['bb', 'ba']

Domino 2: ['abb', 'b']

Solution to this pcp: [['aa', 'aab'], ['bb', 'ba'], ['aa', 'aab'], ['abb', 'b']]

aabbbaabb <--- 1st

aabbbaabb <--- 2nd

Indexes: [0, 1, 0, 2]

(d):

Type in "100 a#ab ba#aba b#aba bba#b"

Here's the result:

Input:

100 a#ab ba#aba b#aba bba#b

Domino 0: ['a', 'ab']

Domino 1: ['ba', 'aba']

Domino 2: ['b', 'aba']

Domino 3: ['bba', 'b']

Solution to this pcp: [['a', 'ab'], ['bba', 'b'], ['ba', 'aba']]

abbaba <--- 1st

abbaba <--- 2nd

Indexes: [0, 3, 1]