8)

A=1/2 B=1/3 C=1/6

mod 3

ABCBABBAACBA = 12 total chars

possible length 1, 2, 3

1: A B C B A B B A A C B A

A=5 B=5 C=2

A=5/12 B=5/12 C=2/12

=7 not the sames as 1/2, 1/3, 1/6

2: A B C B A B B A A C B A

2-1: A C A B A B

2-2: B B B A C A

2-1: A = 3/6 = 1/2 B = 2/6 = 1/3 C = 1/6

2-2: B = 3/6 = 1/2 A = 2/6 = 1/3 C = 1/6

=7 same as A = 1/2 B = 1/3 C = 1/6

Correct length of key = 2

Key odd numbers: A = A
B = B
C = C

even numbers: A = B
B = A
C = C

3: A B C B A B B A A C B A

3-1: A B B B A = 1/4 B = 3/4

3-2: B A A B A = 2/4 = 1/2 B = 2/4 = 1/2

3-3: C B A A C = 1/4 B = 1/4 A = 1/2

=7 Don't Match