Find My Number

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
	1	2	3	

Given the above keypad find all 10 key sequences that can be keyed in given the following constraints:

1. The initial keypress can be **any** key.
2. Each subsequent keypress must be a **knight** move from the previous key.
3. There can be at most **2 vowels** in the sequence.

(Note: Given these constraints, a key can be pressed multiple times in the same sequence)

A knight move is defined as either of the following:

1. Move two keys vertically and one horizontally.
2. Move two keys horizontally and one vertically.

(Note: There is no wrapping allowed on a knight move)

Starting from “A” here is an example of a sequence of 3 valid knight moves:

“A” -> “L”

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
	1	2	3	

“L” -> “3”

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
	1	2	3	

“3” -> “J”

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
	1	2	3	

Your program should print the **total** number of valid 10 key sequences.
It should print on a single line to standard out.

Frequently Asked Questions:

1. How much time should I spend on this?

There is no time limit. However, given we'd like to get a solution back within a week, we've tried to make this something that is doable in an evening.

2. What language can I use?

Python 3

3. How should I submit my solution?

Upload a zip file containing all of your code and optionally a readme text file explaining anything you think is relevant.

4. Can I use third party libraries?

No – however feel free to use Python's standard library.

5. How will my solution be evaluated?

We will run and review the submission. We will evaluate the correctness of the solution as well as the format, structure and styling of your code. We will also look for evidence of your approach to testing (please note, we do not expect full test coverage)

If you are successful, please be prepared to talk through your solution.