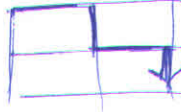


2x2 matrix

right & down

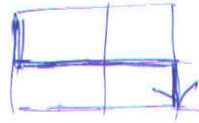
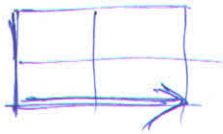
Total 4 moves



R → 3
+ D

- ① RRDD
- ② RDDR
- ③ RDRD

→ each move, has 2R's, 2D's.



D → 3
+ R

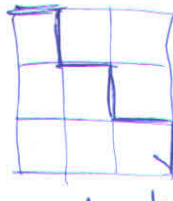
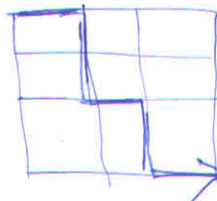
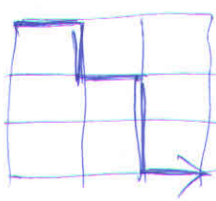
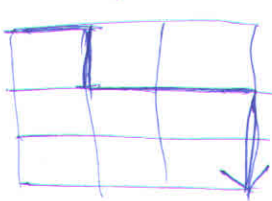
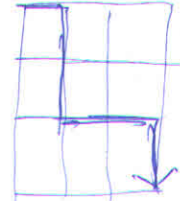
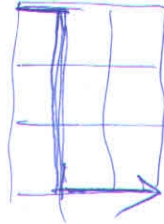
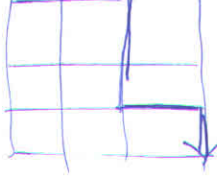
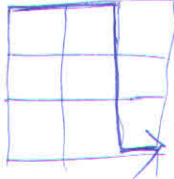
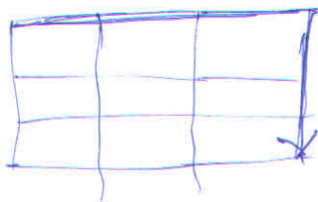
- ① DDDR
- ② DRRD
- ③ DRDR

Generalize

How many combⁿ of R's moves.

$$4C_2 = \frac{2! \times 2!}{2! \times 1!} = 6$$

3x3 matrix



- ⇒
- ① RRRUUU
 - ② RRUUUR
 - ③ RRUURU
 - ④ RRURUU

So on.

→ each route has 6 moves.
each has, 3R's & 3U's.

⇒ ∴ How many combⁿ of 3R's in 6 moves.
 $6C_3 = \frac{6 \times 5 \times 4}{3 \times 2 \times 1} = 20$

∴ for 20x20 matrix

Total no. of moves: $(20+20) = 40$.

no. of R's = 20,
no. of U's = 20.

How many combinations of 20R's in 40 moves

$$40C_{20} = \frac{40 \times \dots \times 21}{20 \times \dots \times 1}$$