



Prove

$\nexists$

$\exists$  solution

to

problem

$\nexists$  errors

$\nexists$  perfect  $\exists$  solution

$\nexists$  input  $\in \{ \text{bad inputs} \}$

$\nexists$  perfect program

$\exists$  solution  $\wedge$   $\nexists$  a way to find it

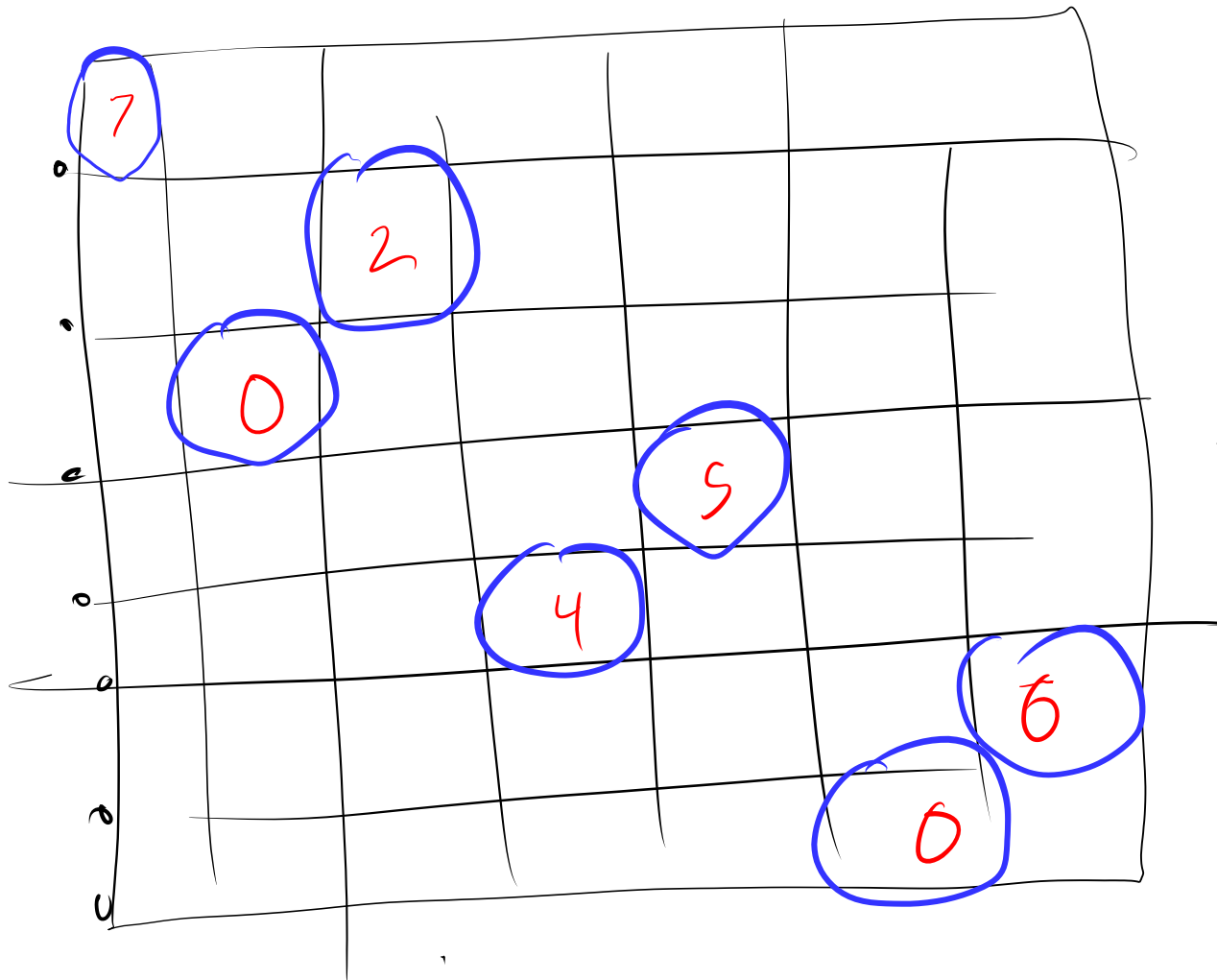
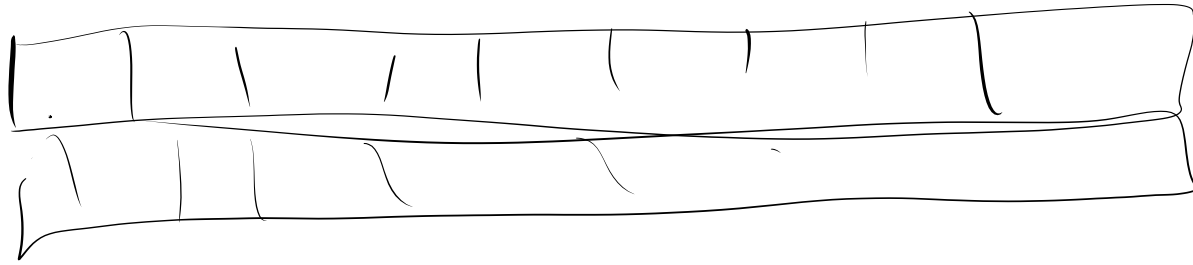
$\nexists$  better program

$$|P| < |Q|$$

if match  $P_s$  &  $Q_s$ , some Extra  $Q_s$

$\exists f: Q \rightarrow P$  .  ~~$f$  is a function~~  
&  $f$  is injection    each  $P$  is used  $\leq 1$  time  
&  $f$  is total





0.4 7 9 1 2 7 3 ...

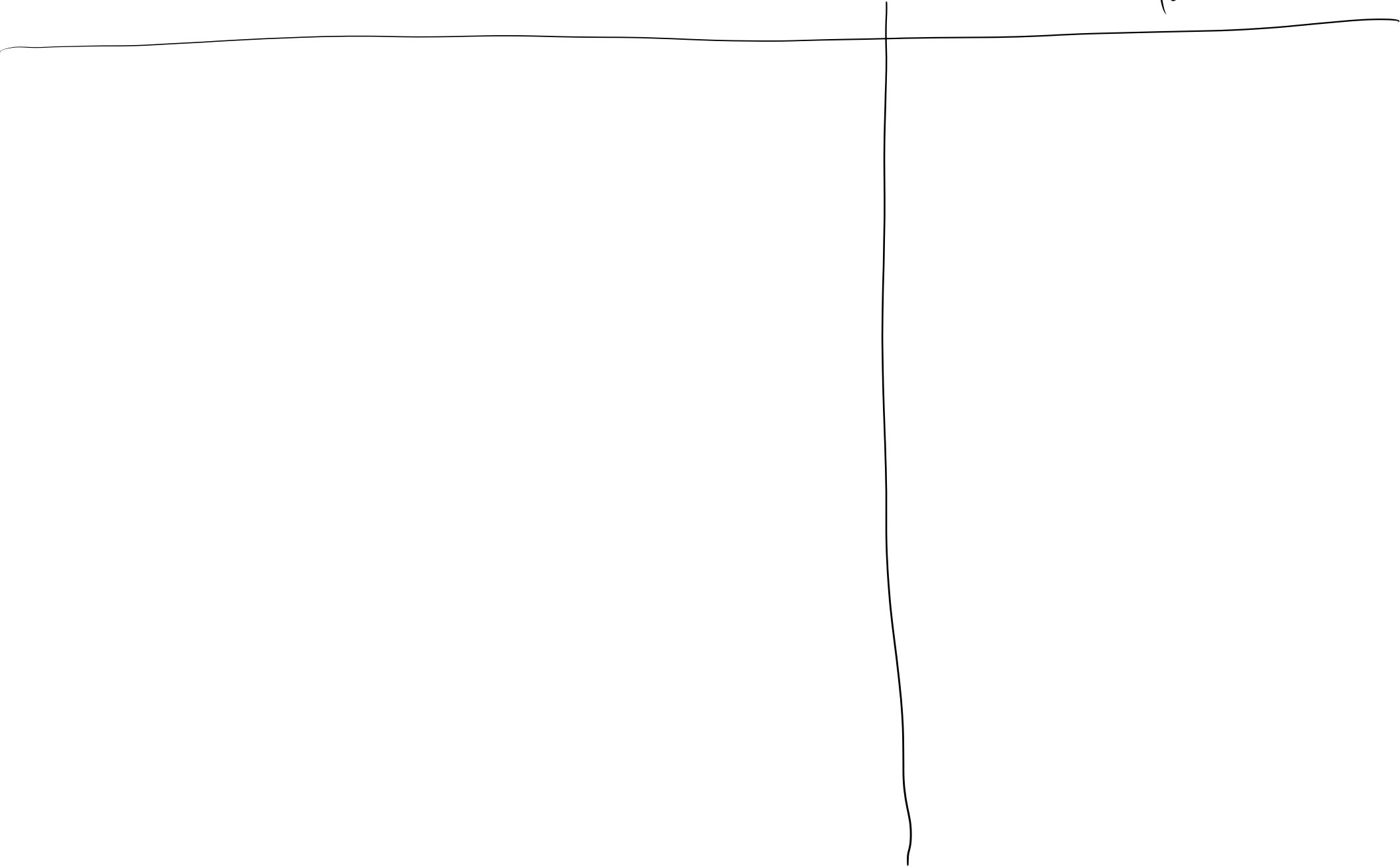
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- n

0 2 2 0 0 (1)  
0 2  
0 3  
0 4  
0 5  
0 6  
0 7  
0 5  
0 9  
0

| | | | | | | | | | | | | | | | | | | | | |

$\mathbb{R}$

$\mathbb{N}$



$$|\mathbb{N}| = |\mathbb{Z}| = |\mathbb{Q}|$$

$\aleph_0$

Countable

$$< |\mathbb{R}|$$

$\aleph_1$