

"Punching The Ground" -working out.

There are

6 670 903 752 021 072 936 960
possible sudoku solutions

$$\approx 6.67 \times 10^{21} \quad \text{http://tingurl.com/sdk-ref0}$$



} average atom width

≈ 0.2 nano metres

$\rightarrow 0.0000000002$ m

http://tingurl.com/sdk-ref1

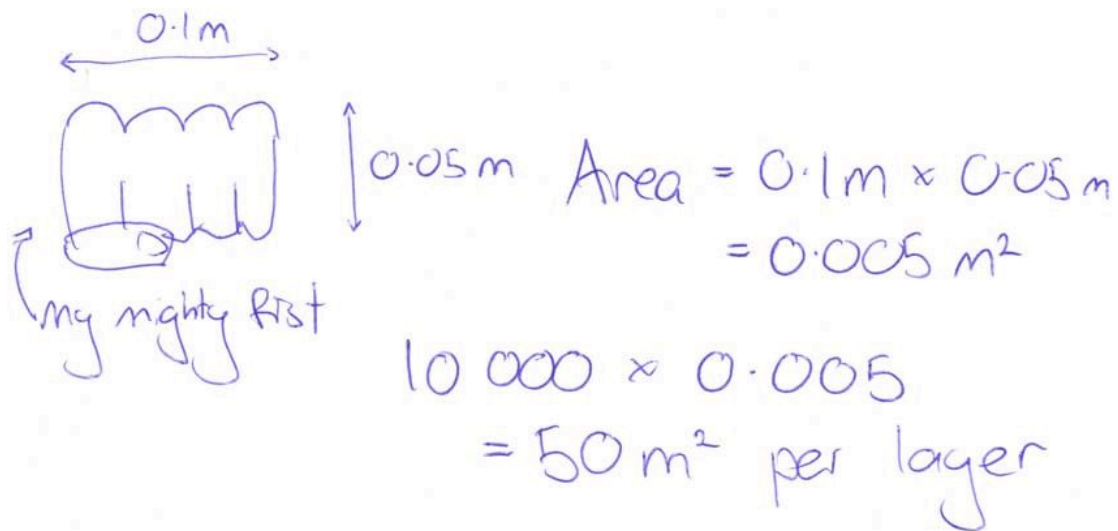
$$\frac{1 \text{ m}}{0.2 \text{ nm}} = 5\,000\,000\,000 \text{ atoms per m.}$$

So 5 000 000 000 punches are
needed per metre, if each punch
removes one layer of atoms.

$$12\,742\,000 \times 5\,000\,000\,000$$

$$= 6.37 \times 10^{16} \text{ punches to get through the Earth!}$$

But if we punch 6.67×10^{21} times,
that's about 10 000 punches
available for each layer.



Area = $\pi \times (\text{radius})^2$

$50 = 3.14159 \times (\text{radius})^2$

radius = $\sqrt{\frac{50}{3.14159\dots}}$

$\approx 4\text{ m}$

Area = 50 m^2

diameter
 $= 2 \times \text{radius}$

So if you punched the ground once for every possible sudoku, removing one layer of atoms with each punch, you would have an 8m wide tunnel through the Earth!