

Anna Zhebrun

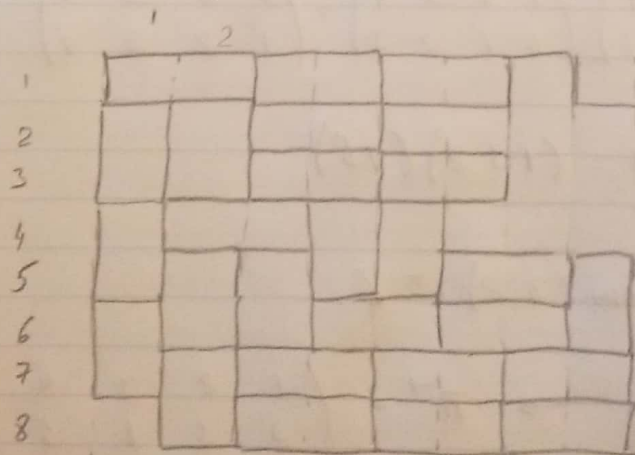
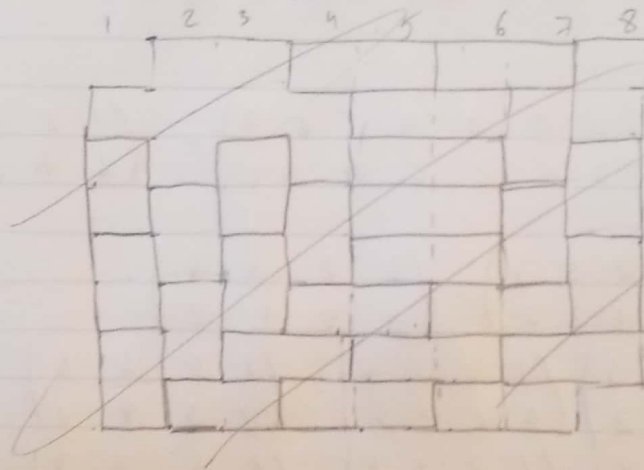
### Attendance

11/01/2021

1. Who were the geniuses who proved the impossibility of formulae for solving a quintic?

Gauss and Ruffini

2. Find a way to place 31 domino pieces and cover completely an  $8 \times 8$  square where 2 opposite corners have been removed.



I am not sure.  $\Rightarrow$  There is no possible answer.

3. At what ages did the above geniuses die  
 Ralph F. Gomory ~ still alive?  
 Solomon Golomb - 83 years old

4. What university did the most in classifying so-called simple groups.  
 What math dept has the most number of faculty members (dead or alive) with groups named after them?  
 Rutgers University (I'm not sure though)

$$1. \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ 4 & 5 & 7 & 6 & 1 & 2 & 3 \end{pmatrix} \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ 3 & 1 & 2 & 6 & 7 & 4 & 5 \end{pmatrix} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ 6 & 7 & 5 & 4 & 3 & 1 & 2 \end{pmatrix}$$

$$2. \pi^2 = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 4 & 1 & 2 & 3 \end{pmatrix} \begin{pmatrix} 1 & 2 & 3 & 4 \\ 4 & 1 & 2 & 3 \end{pmatrix} = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 3 & 4 & 1 & 2 \end{pmatrix}$$

$$\pi^3 = \pi^2 \cdot \pi = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 3 & 4 & 1 & 2 \end{pmatrix} \begin{pmatrix} 1 & 2 & 3 & 4 \\ 4 & 1 & 2 & 3 \end{pmatrix} = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 2 & 3 & 4 & 1 \end{pmatrix}$$

$$\pi^4 = \pi^3 \cdot \pi = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 2 & 3 & 4 & 1 \end{pmatrix} \begin{pmatrix} 1 & 2 & 3 & 4 \\ 4 & 1 & 2 & 3 \end{pmatrix} = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 1 & 2 & 3 & 4 \end{pmatrix} \checkmark$$

$$3. \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 3 & 1 & 2 & 5 & 4 \end{pmatrix} = (132)(45)$$

smallest order  $i = \text{lcm}(3, 2) = 6.$

$$4. \pi = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 3 & 1 & 2 & 5 & 4 \end{pmatrix} \rightarrow \pi^{-1} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 2 & 3 & 1 & 5 & 4 \end{pmatrix}$$