

Attendance Quiz 14

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11/1

Part I:

1.) Who were the 2 geniuses who proved the impossibility of a formula for solving a quintic?

ANS.) Paolo Ruffini and Niels Henrik Abel

2.) Find a way to place 31 domino pieces and cover completely (no overlap, i.e. tiling) an 8×8 square where the two opposite corners have been removed.

ANS) It is impossible!

3) At what age did the above geniuses die?

ANS) Ruffini - 56

Abel - 26.

4) What university did the most in classifying so-called simple groups? What math dept. has the most faculty members (dead or alive) with groups named after them?

ANS) Unsure, perhaps Rutgers

Part II:

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

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

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

$$3.) \begin{pmatrix} 1 & 2 & 3 \\ 3 & 1 & 2 \end{pmatrix} \begin{pmatrix} 4 & 5 \\ 5 & 4 \end{pmatrix}$$

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

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

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