

Oh hey, what's up. We could take $x = y$, or we could solve

$$\begin{pmatrix} a & b \\ c & d \end{pmatrix}^2 = 1. \tag{1}$$

Equation (1) is standard. See also [1].

Let's add one more equation:

$$\dim \mathrm{PGL}_2(\mathbb{R}) = 3.$$

Just touching.

REFERENCES

- [1] Paul D. Nelson. Bounds for standard L -functions. *arXiv e-prints*, page arXiv:2109.15230, September 2021.