

**ZMATH 2014b.00580**

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**Visualizing transformations: matrices, handheld graphing calculators, and computer algebra systems.**

Math. Teach. (Reston) 96, No. 1, 48-56 (2003).

Summary: The article presents some ways in which teachers and students can use CAS-equipped graphing calculators to examine matrices as both graphical and geometric objects. CAS enables students to extend their knowledge of transformations in an active, exploratory fashion.

*Classification:* H60 U70 R20

*Keywords:* matrices as graphical objects; matrices as algebraic objects; approach; multiple perspectives; geometric perspective; modes of representation; graphics calculators; algebraic exploration; matrix multiplication; transformation geometry; matrix plotter program; reflections over axes; rotation matrices; points along the unit circle; isometries; determinants; area; computer algebra; hypothesis generation and testing; visualization