

3-6 Solving Systems Using Matrices Technology Instructions

Graphing Calculator (Allowed on Most Standardized Tests – SAT)	Desmos: https://www.desmos.com/matrix (User Friendly)
<ol style="list-style-type: none"> 1. "2ND" → "x^{-1}" → EDIT → "ENTER". 2. Adjust the number of rows and columns needed. 3. Enter the digits using the arrows to navigate. 4. "2ND" → "MODE". 5. "2ND" → "x^{-1}" → MATH → rref(.). 6. "2ND" → "x^{-1}" → "ENTER" → "ENTER". 7. For fraction form, "MATH" → "ENTER" → "ENTER". 8. Solve the system. See the example below. 	<ol style="list-style-type: none"> 1. "New Matrix" 2. Adjust the number of rows and columns needed. 3. Enter the digits using the tab button or arrows to navigate. 4. "Enter" or "$\frac{\square}{\square}$." 5. "rref(A)" 6. Solve the system. See the example below.

Example:

Make sure the system is in standard form and variables, equal signs, and constants are lined up.


$$\begin{cases} 1x + 3y + 5z = 7 \\ 2x + 4y + 6z = 8 \\ 3x + 9y + 7z = 12 \end{cases}$$

In matrix form, be sure to include zeros for missing variables and ones for missing coefficients.

$$A = \begin{bmatrix} 1 & 3 & 5 & 7 \\ 2 & 4 & 6 & 8 \\ 3 & 9 & 7 & 12 \end{bmatrix}$$

$$\text{rref}(A) = \begin{bmatrix} 1 & 0 & 0 & -\frac{7}{8} \\ 0 & 1 & 0 & \frac{3}{4} \\ 0 & 0 & 1 & \frac{9}{8} \end{bmatrix}$$

Clicking this icon will convert between fraction and decimal form.



This means that $x = -\frac{7}{8}$, $y = \frac{3}{4}$, and $z = \frac{9}{8}$ or $(-\frac{7}{8}, \frac{3}{4}, \frac{9}{8})$.

