

① $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} -2 \\ 3 \end{pmatrix}$

$5x + 4y = 2$ $7x - y = -17$

$5(-2) + 4(3) \stackrel{?}{=} 2$ $7(-2) - (3) \stackrel{?}{=} -17$
 $-10 + 12 \stackrel{?}{=} 2$ $-14 - 3 \stackrel{?}{=} -17$
 $2 \stackrel{?}{=} 2$ $-17 \stackrel{?}{=} -17$

YES

② $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 1 \\ 5 \end{pmatrix}$

$8x - 2y = -2$ $7x + 3y = 10$

$8(1) - 2(5) \stackrel{?}{=} -2$ $7(1) + 3(5) \stackrel{?}{=} 10$
 $8 - 10 \stackrel{?}{=} -2$ $7 + 15 \stackrel{?}{=} 10$
 $-2 \stackrel{?}{=} -2$ $22 \neq 10$

NO

③

$5x - 4y = 30$
 $y = 2x - 9$

SUBSTITUTION METHOD

- SOLVE ONE OF THE EQUATIONS FOR ONE OF THE VARIABLES

$y = 2x - 9$

2. NOW SUBSTITUTE THIS INTO THE OTHER EQUATION

$5x - 4y = 30$

$5x - 4(2x - 9) = 30$

- SOLVE FOR THE VARIABLE

$5x - 8x + 36 = 30$

$-3x + 36 = 30$

$-3x = 30 - 36$

$-3x = -6$

$\frac{-3x}{-3} = \frac{-6}{-3}$

$x = 2$

- SUBSTITUTE THIS VALUE INTO THE EQUATION

STEP 1.

$y = 2x - 9$

$y = 2(2) - 9$

$y = 4 - 9$

$y = -5$

$(2, -5)$

CALC

3. $5x - 4y = 30$

$y = 2x - 9$

$5x - 4y = 30$
 $-2x + y = -9$

$\begin{bmatrix} 5 & -4 & 30 \\ -2 & 1 & -9 \end{bmatrix}$

2x3

$\begin{bmatrix} 1 & 0 & 27 & \leftarrow X \\ 0 & 1 & -5 & \leftarrow Y \end{bmatrix}$

$(2, -5)$

SOLVING LINEAR SYSTEM OF EQUATIONS

- INPUT MATRIX

$\boxed{2ND}$ \boxed{MATH}

- $\boxed{2ND}$ $\boxed{X^{-1}}$

RIGHT ARROW
 UP ARROW TO RREF

\boxed{ENTER}

$\boxed{2ND}$ $\boxed{X^{-1}}$

\boxed{ENTER} \rightarrow $\boxed{2ND}$ \boxed{A}

\boxed{ENTER}

- IF DECIMALS

\boxed{MATH}

\boxed{ENTER}

\boxed{ENTER}

④ $3x + 8y = 13$

$-x + 2y = -9$

1. $-x + 2y = -9$

$2y + 9 = x$

2. $3x + 8y = 13$

$3(2y + 9) + 8y = 13$

3. $6y + 27 + 8y = 13$

$14y + 27 = 13$

$14y = 13 - 27$

$14y = -14$

$\frac{14y}{14} = \frac{-14}{14}$

$y = -1$

4. $x = 2y + 9$

$x = 2(-1) + 9$

$x = -2 + 9$

$x = 7$

$(7, -1)$

$\begin{bmatrix} 3 & 8 & 13 \\ -1 & 2 & -9 \end{bmatrix}$

$\begin{bmatrix} 1 & 0 & 7 & \leftarrow X \\ 0 & 1 & -1 & \leftarrow Y \end{bmatrix}$

$(7, -1)$