

Warm-up: Solving Systems Using Matrices

Solve: $5x - 4y = -2$
 $-3x = -4y + 1$

① $5x - 4y = -2$
 $-3x + 4y = 1$

② $\begin{bmatrix} 5 & -4 \\ -3 & 4 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -2 \\ 1 \end{bmatrix}$

③ $\begin{bmatrix} x \\ y \end{bmatrix} = \frac{1}{8} \begin{bmatrix} 4 & 4 \\ 3 & 5 \end{bmatrix} \begin{bmatrix} -2 \\ 1 \end{bmatrix}$
 $= \frac{1}{8} \begin{bmatrix} -8 + 4 \\ -6 + 5 \end{bmatrix}$
 $= \frac{1}{8} \begin{bmatrix} -4 \\ -1 \end{bmatrix}$

$\frac{20 - 12}{8}$

$= \begin{bmatrix} -4/8 \\ -1/8 \end{bmatrix}$

$\boxed{x = -\frac{1}{2} \quad y = -\frac{1}{8}}$