Solving Systems By Substitution

Steps

1. plug one eq. into the other OR set them equal to each other
2. solve for the 1st variable
3. plug that answer back into 1 eq & solve the 2nd variable
4. write the final answer in point form

ex 1

$y = 5$ & $y = 2x - 9$

① $5 = 2x - 9$
$+9 \quad +9$

② $\frac{14}{2} = \frac{2x}{2}$

$7 = x$

③ $y = 5$ OR $y = 2(7) - 9$
$y = 14 - 9 = 5$

④ $(7, 5)$

ex 2 $y = x + 2$ & $2x - 3y = 9$

① $2x - 3(x+2) = 9$

② $2x - 3x - 6 = 9$
$-x - 6 = 9$
$+6 \quad +6$
$\frac{-x}{-1} = \frac{15}{-1}$
$x = -15$

③ $y = -15 + 2 = -13$

④ $(-15, -13)$

ex3

$4x - 2y = 7$ & $3x - y = 8$

*have to solve 1 for x or y alone

$3x - y = 8$
$+y \quad +y$
$\frac{3x}{-8} = \frac{8 + y}{-8}$
$3x - 8 = y$

① $4x - 2(3x - 8) = 7$
$4x - 6x + 16 = 7$

② $-2x = -9$
$x = 9/2$

③ $y = 3(9/2) - 8$
$y = \frac{27}{2} - \frac{16}{2} = \frac{11}{2}$

④ $(9/2, 11/2)$

your turn: $2x = y + 1$ & $5x = y - 3$

ans: $(-4/3, -11/3)$