

① $x = -6y - 11$

② $x = y + 3$

$-6y - 11 = y + 3$

$-7y - 11 = 3$

$-7y = 14$

$y = -2$

$x = y + 3$

$x = -2 + 3$

$x = 1$

∴ POI $(1, -2)$

$$\textcircled{1} \quad 2x + y = -15$$

$$\textcircled{2} \quad 3x - y = -15$$

$$\cancel{2x} + y = -15 \quad -2x$$

$$y = -2x - 15$$

$$3x - 1(-2x - 15) = -15$$

$$3x + 2x + 15 = -15$$

$$\overset{-15}{-15} \quad 5x + 15 = -15 \quad -15$$

$$5x = -30$$

$$\overset{5}{5} \quad x = -6$$

$$2x + y = -15$$

$$2(-6) + y = -15$$

$$\cancel{+12} \quad -12 + y = -15 \quad +12$$

$$y = -3$$

POI $(-6, -3)$

① $y = x + 3$

② $y = 2x + 2$

$$\cancel{2x}x + 3 = 2\cancel{x} + 2$$

$$\cancel{-3} - x + 3 = 2 \quad \cancel{-3}$$

$$\cancel{-1}x = \frac{-1}{\cancel{-1}}$$

$$x = 1$$

$$y = x + 3$$

$$y = 1 + 3$$

$$y = 4$$

Systems of
Linear Equations.
Substitution #1

POI (1, 4)

$$\begin{array}{rcl}
 4) & ① & 4x + y = -9 \\
 & ② & -7x - 2y = 14 \\
 \hline
 -4x & & -4x \\
 4x + y & = & -9 \\
 y & = & -4x - 9
 \end{array}$$

$$\begin{array}{rcl}
 -7x - 2(-4x - 9) & = & 14 \\
 -7x + 8x + 18 & = & 14 \\
 x + 18 & = & 14 \\
 x & = & -4
 \end{array}$$

$$\therefore \text{pt}(-4, 7)$$

$$\begin{array}{rcl}
 -7x - 2y & = & 14 \\
 -7(-4) - 2y & = & 14 \\
 28 - 2y & = & 14 \\
 -2y & = & -14 \\
 y & = & 7
 \end{array}$$

1 $y = -2x + 6$

2 $y = -3x + 10$

$$\begin{array}{r} +3x \\ -2x + 6 = -\cancel{3x} + 10 \end{array}$$

$$\begin{array}{r} -6 \\ x + \cancel{6} = 10 - 6 \\ x = 4 \end{array}$$

$$y = -2x + 6$$

$$y = -2(4) + 6$$

$$y = -8 + 6$$

$$y = -2$$

POI (4, -2)

$$\begin{array}{r}
 3) \textcircled{1} -2x - 2y = -20 \\
 \textcircled{2} \quad -5x + y = -8 \\
 \hline
 \cancel{15x} - 5x + y = -8 \quad +5x \\
 y = 5x - 8
 \end{array}$$

$$\begin{array}{r}
 -2x - 2(5x - 8) = -20 \\
 -2x - 10x + 16 = -20 \\
 \underline{-12x + 16 = -20} \quad -16 \\
 \underline{-12x = -36} \\
 \underline{-12} \quad \underline{-12} \\
 x = \textcircled{3}
 \end{array}$$

$$\begin{array}{r}
 -5x + y = 8 \\
 -5(3) + y = -8 \\
 \cancel{+15} \quad -15 + y = -8 \quad +15 \\
 y = 7
 \end{array}$$

∴ POI(3, 7)