Intersection of

$$\begin{bmatrix} 4x-5y=-2 \\ 3x-7y=-3 \end{bmatrix} \begin{matrix} ①\times 3 \\ ②\times 4 \end{matrix} \Longrightarrow \begin{bmatrix} 12x-15y=-6 \\ 12x-28y=-12 \end{bmatrix}$$

$① - ② \Longrightarrow 13y = 6$

$$\boxed{y = \frac{6}{13}}$$

$$4x - 5\left(\frac{6}{13}\right) = -2$$

$$52x - 30 = -26$$

$$52x = 4$$

$$x = \frac{4}{52} = \frac{2}{26} = \frac{1}{13}$$

$$\boxed{x = \frac{1}{13}}$$

$$\therefore \left(\frac{1}{13}, \frac{6}{13}\right)$$

SOLN

Find numbers x and y that satisfy both equations.

- So just solve the pair of equations for x, y.

$$\begin{matrix} ① \\ ② \end{matrix} \begin{bmatrix} 3x+2y=9 \\ 3x+5y=7 \end{bmatrix} \quad ① - ② \Longrightarrow -3y = 2$$

$$\boxed{y = \frac{-2}{3}}$$

$$3x + 2\left[\frac{-2}{3}\right] = 9$$

$$9x - 4 = 27$$

$$9x = 31$$

$$\boxed{x = \frac{31}{9}}$$

$$\therefore \left(\frac{31}{9}, \frac{-2}{3}\right)$$

Intersection of

$$\begin{pmatrix} 5x-2y=1 \\ 9x+5y=0 \end{pmatrix} \xrightarrow[\text{②}\times 2]{\text{①}\times 5} \begin{pmatrix} 25x-10y=5 \\ 18x+10y=0 \end{pmatrix} \xrightarrow{\text{①}+\text{②}} 43x=5$$

$$\boxed{x=\frac{5}{43}}$$

$$5\left[\frac{5}{43}\right]-2y=1$$

$$25-86y=43$$

$$-86y=18$$

$$y=\frac{-18}{86}$$

$$y=\frac{-9}{43}$$

$$\boxed{y=\frac{-9}{43}}$$

$\therefore$ Therefore

$\because$ because

$$\therefore \left(\frac{5}{43}, \frac{-9}{43}\right)$$