15. $\frac{dx}{dt} = 2x+y+3$

$\frac{dy}{dt} = -3x-2y-4$

$$\begin{cases} 2x+y+3=0 \\ -3x-2y-4=0 \end{cases}$$

$$\begin{cases} 2x+y+3=0 \\ x=-\frac{2y+4}{3} \end{cases}$$

$$2\cdot\left(-\frac{2y+4}{3}\right)+y+3=0$$

$$-\frac{4y+8}{3}+\frac{3y}{3}+3=0$$

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

$$-(y+8)=-9$$

$$-y-8=-9$$

$$y=1$$

$$x=-\frac{2+4}{3}=-2$$

ODP.: $(-2,1)$

16. $\frac{dx}{dt} = -5x+2y$

$\frac{dy}{dt} = x-4y$

$$\begin{cases} -5x+2y=0 \\ x-4y=0 \end{cases}$$

$$\begin{cases} -5x+2y=0 \\ x=4y \end{cases}$$

$$-5\cdot 4y+2y=0$$

$$-20y+2y=0$$

$$y=0$$

$$x=0$$

ODP.: $(0,0)$

17. $\frac{dx}{dt} = 2x + 13y$

$\frac{dy}{dt} = -x - 2y$

$\begin{cases} 2x + 13y = 0 \\ -x - 2y = 0 \end{cases}$

$\begin{cases} 2x + 13y = 0 \\ x = -2y \end{cases}$

$2 \cdot (-2y) + 13y = 0$

$-4y + 13y = 0$

$y = 0$

$x = 0$

opp.: $(0,0)$

18. $\frac{dx}{dt} = x(7 - x - 2y)$

$\frac{dy}{dt} = y(5 - x - y)$

$\begin{cases} x(7 - x - 2y) = 0 \\ y(5 - x - y) = 0 \end{cases}$

$\begin{cases} y = -\frac{x-7}{2} \\ y(5 - x - y) = 0 \end{cases}$

$-\frac{x-7}{2}\left(5 - x + \frac{x-7}{2}\right) = 0$

$-\frac{x-7}{2} = 0 \quad \vee \quad 5 - x + \frac{x-7}{2} = 0$

$x_1 = 7$

$y_1 = 0$

$\frac{10 - 2x + x - 7}{2} = 0$

$3 - x = 0$

$x_2 = 3$

$y_2 = -\frac{3-7}{2} = 2$

opp.: $(7,0), (3,2)$