

$$13 \begin{cases} \frac{5(x+y)}{3} = 15 \\ x - 2y = -3 \end{cases}$$

$$14 \begin{cases} 2x + y + 7 = -7 - 3y \\ 4x + 4y + 4 = x - 7 \end{cases}$$

$$\textcircled{15} \begin{cases} \frac{x+y}{2} = \frac{x-y}{3} \\ x + 4y = -\frac{1}{2} \end{cases}$$

$$16 \begin{cases} \frac{1}{x} + \frac{1}{y} = \frac{7}{12} \\ \frac{1}{x} - \frac{1}{y} = -\frac{1}{12} \end{cases}$$

$$17 \begin{cases} \frac{1}{x+1} + \frac{1}{y-2} = \frac{7}{12} \\ \frac{1}{x+1} - \frac{1}{y-2} = -\frac{1}{2} \end{cases}$$

$$18 \begin{cases} x + \frac{8}{y-1} = -3 \\ -2x + \frac{12}{y-1} = -3 \end{cases}$$

$$\textcircled{19} \begin{cases} \frac{7}{x} + \frac{4}{y} = \frac{1}{2} \\ \frac{3}{x} - \frac{5}{y} = \frac{3}{14} \end{cases}$$

$$20 \begin{cases} \frac{x+y}{xy} = \frac{3}{4} \\ \frac{x-y}{xy} = \frac{1}{4} \end{cases}$$

$$21 \begin{cases} 2(x+2y) = 0 \\ -3(-y+3x) = 0 \end{cases}$$

$$22 \begin{cases} \frac{x}{3} = 2y - 1 \\ 3 = 2y - x \end{cases}$$

$$\textcircled{23} \begin{cases} \frac{x}{3} - 5y + 8 = \frac{x}{2} - 3 \\ \frac{y}{2} - \frac{x}{3} + 4 = y + 1 \end{cases}$$

$$24 \begin{cases} 2y + 3x - \frac{43}{12} = 0 \\ -5x + 3y = -\frac{7}{4} \end{cases}$$

$$25 \begin{cases} 2x + (m-1)y = 1 \\ 3x + y = 0 \end{cases}$$

$$26 \begin{cases} mx + y = 2 \\ 2x - y = 1 \end{cases}$$

$$27 \begin{cases} 5x - 2y = m \\ 2x + 3y = 17 \end{cases}$$

$$28 \begin{cases} (m+2)x + y = 1 \\ 3x + 2y = 13 \end{cases}$$

$$29 \begin{cases} x + my = 2 \\ mx + 3y = 3 \end{cases}$$

$$30 \begin{cases} x + 4y = m+3 \\ 7x - y = 1 \end{cases}$$

$$31 \begin{cases} x + y = 3 \\ mx - 2y = 5 \end{cases}$$

$$\textcircled{19} \begin{cases} \frac{7}{x} + \frac{4}{y} = \frac{1}{2} \\ \frac{3}{x} - \frac{5}{y} = \frac{3}{14} \end{cases} \text{ et } (x; y) \in \mathbb{R}^* \times \mathbb{R}^*$$

$$\Leftrightarrow t = \frac{1}{x} \text{ et } u = \frac{1}{y} \text{ et } \begin{cases} 7t + 4u = \frac{1}{2} \\ 3t - 5u = \frac{3}{14} \end{cases}$$

$$\Leftrightarrow t = \frac{1}{x} \text{ et } u = \frac{1}{y} \text{ et } \begin{cases} 7t + 4u = \frac{1}{2} & | \begin{matrix} 5 \\ 5 \end{matrix} \\ 3t - 5u = \frac{3}{14} & | \begin{matrix} -7 \\ -7 \end{matrix} \end{cases} \begin{matrix} \textcircled{1} \\ \textcircled{2} \end{matrix}$$

$$\Leftrightarrow \begin{cases} \textcircled{1} & 0 \cdot t + 55u = 5 \cdot \frac{1}{2} - 7 \cdot \frac{3}{14} = 1 \\ \textcircled{2} & 55t + 0 \cdot u = 5 \cdot \frac{1}{2} + 4 \cdot \frac{3}{14} = \frac{35+12}{14} = \frac{47}{14} \end{cases}$$

$$\Leftrightarrow \begin{cases} \textcircled{1} & u = \frac{1}{55} \text{ et } u = \frac{1}{y} \\ & t = \frac{47}{-14 \cdot 55} \text{ et } t = \frac{1}{x} \end{cases} \Leftrightarrow \begin{cases} y = 55 \\ x = \frac{-14 \cdot 55}{47} = -\frac{770}{47} \end{cases}$$

$$\Leftrightarrow (x; y) \in \left\{ \left( -\frac{770}{47}; 55 \right) \right\}$$

$$23 \quad \begin{cases} \frac{x}{3} - 5y + 8 = \frac{x}{2} - 3 \\ \frac{y}{2} - \frac{x}{3} + 4 = y + 1 \end{cases} \Leftrightarrow \begin{cases} \frac{x}{3} - \frac{x}{2} - 5y = -11 \\ -\frac{x}{3} + \frac{y}{2} - y = -3 \end{cases}$$

$$\Leftrightarrow \begin{cases} -\frac{x}{6} - 5y = -11 \\ -\frac{x}{3} - \frac{y}{2} = -3 \end{cases} \Leftrightarrow \begin{cases} x + 30y = 66 & | -2 \\ 2x + 3y = 18 & | 1 \end{cases}$$

$$\Leftrightarrow \begin{cases} -2x - 60y = -132 & (1) \\ 2x + 3y = 18 & (2) \end{cases} \Leftrightarrow \begin{cases} (1)+(2) & 0x - 57y = -114 \\ & \text{et } y = 2 \\ & 2x + 3 \cdot 2 = 18 \text{ et } x = 6 \end{cases}$$

$$\Leftrightarrow (x; y) \in \{(6; 2)\}$$