

$$1) a) \begin{cases} 2a + 3b = 1 \quad | \cdot 2 \\ 4a + 2b = 3 \end{cases} \Leftrightarrow \begin{cases} 4a + 6b = 2 \\ 4a + 2b = 3 \end{cases}$$

$$4b = -1$$

$$b = -\frac{1}{4}$$

$$4a + \frac{2}{4} = 3$$

$$4a = 3 - \frac{1}{2} = \frac{5}{2}$$

$$a = \frac{5}{2 \cdot 4} = \frac{5}{8}$$

Omben: $\begin{pmatrix} \frac{5}{8} \\ -\frac{1}{4} \end{pmatrix}$

$$b) \begin{cases} 3x + 4y = 10 \quad | \cdot 3 \\ 4x + 3y = 5 \quad | \cdot 4 \end{cases} \Leftrightarrow \begin{cases} 9x + 12y = 30 \\ 16x + 12y = 20 \end{cases}$$

$$-7x = 10$$

$$x = -\frac{10}{7}$$

$$-\frac{30}{7} + 4y = 10$$

$$4y = \frac{70+30}{7} = \frac{100}{7}$$

$$y = \frac{100}{7 \cdot 4} = \frac{25}{7}$$

Omben: $\begin{pmatrix} -\frac{10}{7} \\ \frac{25}{7} \end{pmatrix}$

$$c) \begin{cases} 5z - 7x = 3 \quad | \cdot 3 \\ 3z - 5x = 2 \quad | \cdot 5 \end{cases} \Leftrightarrow \begin{cases} 15z - 21x = 9 \\ 15z - 25x = 10 \end{cases}$$

$$4x = -1$$

$$x = -\frac{1}{4}$$

$$3z + \frac{5}{4} = 2$$

$$3z = \frac{4-5}{4} = -\frac{1}{4}$$

$$z = \frac{-\frac{1}{4}}{3} = -\frac{1}{12}$$

Omben: $\begin{pmatrix} -\frac{1}{12} \\ -\frac{1}{4} \end{pmatrix}$

$$2) a) \begin{cases} x - y = 3 \\ x + y = 5 \end{cases}$$

$$\begin{array}{r} x - y = 3 \\ x + y = 5 \\ \hline -2y = -2 \\ y = 1 \end{array}$$

$$x = 4$$

Omben: $(4; 1)$

$$b) \begin{cases} a + b = 2 \\ a - b = 6 \end{cases}$$

$$\begin{array}{r} a + b = 2 \\ a - b = 6 \\ \hline 2b = -4 \\ b = -2 \end{array}$$

$$a = 4$$

Omben: $(4; -2)$

$$c) \begin{cases} 3z - t = 4 \\ 3z + t = 8 \end{cases}$$

$$\begin{array}{r} 3z - t = 4 \\ 3z + t = 8 \\ \hline -2t = -4 \\ t = 2 \end{array}$$

$$z = 2$$

Omben: $(2; 2)$

$$d) \begin{cases} 3a + 2b = 1 \quad | \cdot 5 \\ 2a + 5b = 8 \quad | \cdot 2 \end{cases} \Leftrightarrow \begin{cases} 15a + 10b = 5 \\ 4a + 10b = 16 \end{cases}$$

$$\begin{array}{r} 15a + 10b = 5 \\ 4a + 10b = 16 \\ \hline 11a = -11 \\ a = -1 \end{array}$$

$$-2 + 5b = 8$$

$$5b = 10$$

$$b = 2$$

Omben: $(-1; 2)$

$$e) \begin{cases} 3u - 2v = 12 \quad | \cdot 3 \\ 4u + 3v = -1 \quad | \cdot 2 \end{cases} \Leftrightarrow \begin{cases} 9u - 6v = 36 \\ 8u + 6v = -2 \end{cases}$$

$$\begin{array}{r} 9u - 6v = 36 \\ 8u + 6v = -2 \\ \hline 17u = 34 \\ u = 2 \end{array}$$

$$6 - 2v = 12$$

$$-2v = 6$$

$$v = -3$$

Omben: $(2; -3)$

$$f) \begin{cases} 3x - 2y = 0 \quad | \cdot 3 \\ 5x - 3y = 19 \quad | \cdot 2 \end{cases} \Leftrightarrow \begin{cases} 9x - 6y = 0 \\ 10x - 6y = 38 \end{cases}$$

$$\begin{array}{r} 9x - 6y = 0 \\ 10x - 6y = 38 \\ \hline -x = -38 \\ x = 38 \end{array}$$

$$114 - 6y = 0$$

$$-6y = -114$$

$$y = 19$$

Omben: $(38; 19)$