

2/3

$$\textcircled{1} \begin{bmatrix} 5 & 10 \\ 7 & 12 \\ 11,3 & 5 \\ 25 & 30 \end{bmatrix} + 2 \cdot \begin{bmatrix} 5 & 10 \\ 7 & 12 \\ 11,3 & 5 \\ 25 & 30 \end{bmatrix} = \begin{bmatrix} 5 & 10 \\ 7 & 12 \\ 11,3 & 5 \\ 25 & 30 \end{bmatrix} \cdot (7+2) = \begin{bmatrix} 45 & 90 \\ 63 & 108 \\ 101,7 & 45 \\ 225 & 270 \end{bmatrix}$$

$$\textcircled{2} \begin{cases} 3x - 2y + 5z = 7 \\ 7x + 4y - 8z = 3 \\ 5x - 3y - 4z = -12 \end{cases} \quad \begin{cases} y = -3,5 + 1,5x + 2,5z \\ 13x + 2z = 17 \\ 5x - 3y - 4z = -12 \end{cases}$$

$$\begin{aligned} & 4(-3,5 + 1,5x + 2,5z) + 7x - 8z = 3 \\ & -14 + 6x + 10z + 7x - 8z = 3 \\ & 13x + 2z = 17 \end{aligned}$$

$$\begin{cases} y = -3,5 + 1,5x + 2,5z \\ z = 8,5 - 6,5x \\ 6x = 1 \end{cases}$$

$$\begin{aligned} & -11,5(8,5 - 6,5x) + 0,5x = -22,5 \\ & -97,75 + 74,75x + 0,5x = -22,5 \\ & 75,25x = 75,25 \\ & x = 1 \end{aligned}$$

$$\begin{cases} y = 3 \\ z = 2 \\ x = 1 \end{cases}$$

Ordet: $x=1$, $y=3$, $z=2$; ceterum grad.
 stuvurinn; kinnar grad. mæturinn

$$\textcircled{3} \begin{cases} x^2 + yx - 9 = 0 \\ x - \frac{y}{5} = 0 \end{cases} \begin{cases} y = \pm \frac{5\sqrt{6}}{2} \\ x = \frac{y}{5} \end{cases} \begin{cases} y = \pm \frac{5\sqrt{6}}{2} \\ x = \pm \frac{\sqrt{6}}{2} \end{cases}$$

$$\left(\frac{y}{5}\right)^2 + y \cdot \frac{y}{5} - 9 = 0$$

$$\frac{y^2}{25} + \frac{y^2}{5} - 9 = 0 \quad | \cdot 25$$

$$y^2 + 5y^2 - 225 = 0$$

$$6y^2 = 225$$

$$y^2 = 225/6$$

$$y_{1,2} = \pm \frac{5\sqrt{6}}{2}$$

Отбрасывание:

$$\frac{225}{6} = \frac{15}{\sqrt{6}} = \frac{15\sqrt{6}}{6} = \frac{5\sqrt{6}}{2}$$

$$x_1 = \frac{5\sqrt{6}}{2} \cdot \frac{1}{5} = \frac{\sqrt{6}}{2}$$

$$x_2 = -\frac{5\sqrt{6}}{2} \cdot \frac{1}{5} = -\frac{\sqrt{6}}{2}$$

Ответ: $x_{1,2} = \pm \frac{\sqrt{6}}{2}$ $y = \pm \frac{5\sqrt{6}}{2}$ первое урав. — линейное
второе — нелинейное

$$\textcircled{4} \begin{cases} x \cdot y = 48 \\ 2(x+y) = 28 \end{cases} \begin{cases} xy = 48 \\ x+y = 14 \end{cases} \quad x = 14 - y$$

$$y(14-y) = 48$$

$$14y - y^2 - 48 = 0$$

$$y^2 - 14y + 48 = 0$$

$$\begin{cases} y_1 = +6 \\ y_2 = +8 \end{cases}$$

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$$x_1 = 20 \quad 8$$

$$x_2 = 22 \quad 6$$

Ответ: $y_1 = -6, x_1 = 20$
 $y_2 = -8, x_2 = 22$