Задание 1

$$7 \cdot \begin{bmatrix} 5 & 10 \\ 7 & 12 \\ 11.3 & 5 \\ 25 & 30 \end{bmatrix} + 2 \cdot \begin{bmatrix} 5 & 10 \\ 7 & 12 \\ 11,3 & 5 \\ 25 & 30 \end{bmatrix} = \begin{bmatrix} 35 & 70 \\ 49 & 84 \\ 79,1 & 35 \\ 175 & 210 \end{bmatrix} + \begin{bmatrix} 10 & 20 \\ 14 & 24 \\ 22,6 & 10 \\ 50 & 60 \end{bmatrix} =$$

$$= \begin{bmatrix} 45 & 90 \\ 63 & 108 \\ 101.7 & 45 \\ 225 & 270 \end{bmatrix}$$

(2)

$$\begin{cases} 3x-2y+5z=7 \\ 7x+4y-8z=3 \\ 5x-3y-4z=-12 \end{cases}$$

$$\begin{cases} x=\dfrac{7+2y-5z}{3} \\ \dfrac{7(7+2y-5z)}{3}+4y-8z=3 \\ \dfrac{5(7+2y-5z)}{3}-3y-4z=-12 \end{cases}$$

$$\frac{7(7+2y-5z)}{3}+4y-8z=3$$

$$\frac{49+14y-35z}{3}+4y-8z=3$$

$$\frac{49+14y-35z+12y-24z}{3}=3$$

$$\frac{26y-59z+49}{3}=3$$

$$26y-59z+49=9$$

$$26y=9+59z-49=59z-40$$

$$y=\frac{59z-40}{26}$$

$$x=\frac{7+2y-5z}{3}$$

$$y=\frac{59z-40}{26}$$

$$\frac{5(7+2y-5z)}{3}-3y-4z=-12$$

$$\frac{35+10y-25z}{3}-3y-4z=-12$$

$$\frac{35+\dfrac{10(59z-40)}{26}-25z}{3}-\frac{3(59z-40)}{26}-4z=-12$$

$$\frac{35+\dfrac{590z-400}{26}-25z}{3}-\frac{177z-120}{26}-4z=-12$$

$$\frac{78(510-60z)}{26\cdot 3}-\frac{78(177z-120)}{26}-78\cdot 4z=-12\cdot 78$$

$$510-60z-531z+360-312z=-936$$

$$-903z+870=-936\ (-1)$$

$$903z-870=936$$

$$903z=936+870=1806\ ;\ z=\frac{1806}{903}=2$$

$$\begin{cases} x = \frac{7+2y-5z}{3} \\ y = \frac{59z-40}{26} \\ z = 2 \end{cases}$$

$$\frac{7+2\cdot 3-5\cdot 2}{3} = \frac{7+6-10}{3} = \frac{3}{3} = 1$$

$$\frac{59\cdot 2-40}{26} = 3$$

$$\begin{cases} x^2 + yx - 9 = 0 \\ x - \frac{y}{5} = 0 \end{cases} \qquad y = 5x$$

$$(5x)^2 + 5x \cdot x - 9 = 0$$

$$25x^2 + 5x^2 - 9 = 0$$

$$30x^2 - 9 = 0$$

$$3(10x^2 - 3) = 0$$

$$10x^2 - 3 = 0$$

$$10x^2 = 3$$

$$x^2 = \frac{3}{10}$$

$$x = \frac{\sqrt{3}}{\sqrt{10}} =$$

$$y = 5 \cdot \frac{\sqrt{3}}{\sqrt{10}} = 5 \cdot \frac{\sqrt{3}}{\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}} = \frac{5\sqrt{30}}{10} = \frac{\sqrt{30}}{2}$$

Задача 4

Дано

$S = 48м^2$

$P = 28м$

$\begin{cases} S = a \cdot b \\ P = 2(a+b) \end{cases}$

$\begin{cases} S = a \cdot b \\ a = P/2 - b \end{cases}$

a - ?

b - ?

$\begin{cases} a = \frac{S}{b} = \frac{48}{b} \\ P = 2\left(\frac{48}{b} + b\right) \end{cases}$

$28 = 2\left(\frac{48}{b} + b\right)$

$\frac{48}{b} + b = 14$

$48 + b^2 = 14b$

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

$b_2 \quad \frac{14 \pm \sqrt{14^2 - 4 \cdot 1 \cdot 48}}{2} = \frac{14 \pm \sqrt{196 - 192}}{2} = \frac{+14 \pm 2}{2}$

$b_{1,2} = \frac{+14+2}{2} = 8$

$b_2 = \frac{14-2}{2} = 6$

$S = a \cdot b$; $a_1 = \frac{48}{6} = 8$

$a_2 = \frac{48}{8} = 6$