

(1) 3

$$\underline{3x+4y-5=0}, \quad 5x-12y+3=0$$

Sokrapping rosporo

$$\frac{|3x+4y-5|}{\sqrt{25}} = \frac{|5x-12y+3|}{\sqrt{169}}$$

$$\frac{|3x+4y-5|}{5} = \frac{|5x-12y+3|}{13}$$

$$13|3x+4y-5| = 5|5x-12y+3|$$

$$\sqrt{13(3x+4y-5)} = \sqrt{5(5x-12y+3)}$$

$$\sqrt{13(3x+4y-5)} = -\sqrt{5(5x-12y+3)}$$

$$\sqrt{39x-25x+52y+60y-65+15}=0$$

$$\sqrt{39x+25x+52y-60y-65+15}=0$$

$$\sqrt{14x+12y-30}=0$$

$$\sqrt{69x-8y-50}=0$$

$$\sqrt{7x+56y-40}=0$$

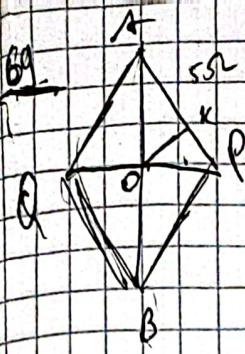
$$\sqrt{32x-4y-25}=0$$

M(10, 5/4) del

$$d_1 = \frac{|40-40|}{\sqrt{3185}} = \frac{30}{\sqrt{3185}} \Rightarrow \text{Sokrapping rosporo kryta}$$

$$d_{12} = \frac{|-5-25|}{\sqrt{1040}} = \frac{30}{\sqrt{1040}}$$

Bijmabolgi:  $7x+56y-40=0$ .



$$Q(1, 2) \quad P(3, -4)$$

$$PQ(-4, 6)$$

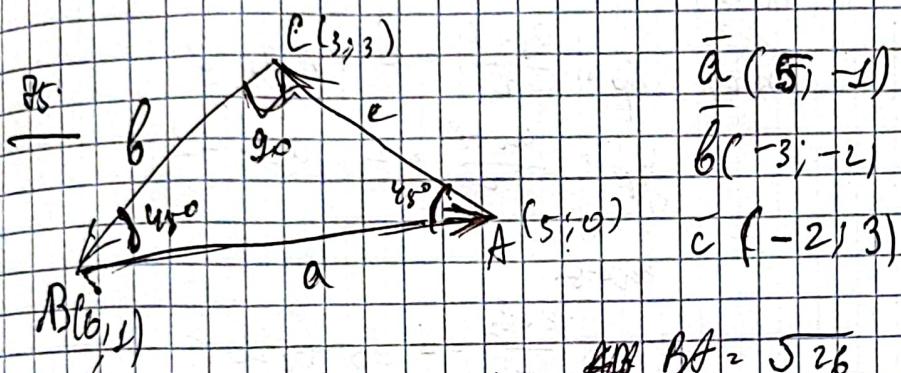
$$|PQ| = \sqrt{4^2 + 6^2} = \sqrt{52} = 2\sqrt{13}$$

$$OP = \sqrt{10}$$

$$\text{OQ} = \sqrt{5^2 + 3^2} = \sqrt{34} = \sqrt{10 \cdot 3.4} = \sqrt{10} \cdot \sqrt{3.4}$$

$$\frac{\sqrt{10} \cdot \sqrt{3.4}}{\sqrt{10}} = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{2} \cdot (2\sqrt{13})$$

Bojanjivo: 252



$$\bar{a}(5, -1)$$

$$\bar{b}(-3, -2)$$

$$\bar{c}(-2, 3)$$

$$AB = \sqrt{26}$$

$$CB = \sqrt{13}$$

$$AC = \sqrt{13}$$

pribro

~~Strojnoj niz sredstvami z pomojeyem~~  
~~OCBAKAZA Z NIZOM VZETI VZEMATI.~~

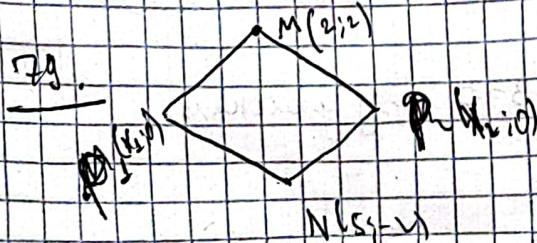
3a. geop. novyj

$$AB^2 = BC^2 + AC^2 - 2BC \cdot AC \cdot \cos \alpha$$

$$26 = 13 + 13 - 2 \cdot 13 \cdot \cos \alpha$$

$$\cos \alpha = 0 \quad \alpha = 90^\circ$$

$$\angle(CBA = 45^\circ), \angle(CAB = 90^\circ), \angle(PCA = 90^\circ)$$



$$\bar{PM} (2-x_1)^2$$

$$\bar{PN} (5-x_1)^2 - 1$$

$$\begin{cases} x^2 - 2x + 6 = 0 \\ x_1 = 6 \quad x_1 = 1 \end{cases}$$

$$\begin{cases} P_1(6, 0) \\ P_2(1, 0) \end{cases}$$

$$\angle 90^\circ \Rightarrow \bar{PM} \cdot \bar{PN} = 0, P_2(1, 0)$$

$$(2-x)(5-x) + 2 \cdot (-1) = 0$$

$$10 - 2x - 5x + x^2 - 4 = 0$$

$$2x + 6 - 1 = 0$$

$$\begin{cases} 2x = -4 \\ x = -2 \end{cases}$$

A(-2, 5)

B:

$$\begin{cases} 6x + 3y + 2 = 0 & | \cdot 2 \\ 9x + 6y + 9 = 0 & | \cdot 3 \end{cases} \quad \begin{cases} 16x + 6y + 2 = 0 \\ 9x + 6y + 9 = 0 \end{cases} \quad \begin{cases} 9x + 8 = 0 \\ x = 1 \end{cases}$$

$$3 + 2y + 3 = 0$$

$$y = -3$$

B(1, -3)

$$\begin{cases} 3x + 2y + 3 = 0 \\ 2x + y - 1 = 0 \end{cases} \quad | \cdot 2$$

$$\begin{cases} 3x + 2y + 3 = 0 \\ 4x + 2y - 2 = 0 \end{cases} \quad | \cdot x = 5$$

$$3x + 2y + 3 = 0$$

$$x - 5 = 0$$

$$10 + y - 1 = 0$$

$$y = -9$$

C(5, -9)

D(5+2) - 9 - 5

E(2+1) - 11

~~(AB) = (CD)~~

D(8) - 17



$$-2 \cdot 1 + 5 \cdot (-3) = 5 \cdot x_0 + (-9) \cdot y_0$$

$$-2 - 15 = 5x_0 - 9y_0$$

$$-17 = 5x_0 - 9y_0$$

$$236. 18x_0 - y - 2 = 0$$

$$D: x + 3y - 31 = 0$$

$$B: 12x_0 - y - 2 = 0$$

$$A: \begin{cases} 4x - y - 2 = 0 \\ x + 3y - 31 = 0 \end{cases} \quad | \cdot 3 \quad \begin{cases} 12x_0 - y - 2 = 0 \\ x + 3y - 31 = 0 \end{cases} \quad | \cdot 4$$

$$A: y = 9$$

$$B: \begin{cases} 4x - y - 2 = 0 \\ x + 3y - 31 = 0 \end{cases} \quad | \cdot 4 \quad \begin{cases} 16x_0 - 4y - 8 = 0 \\ 4x + 12y - 124 = 0 \end{cases} \quad | \cdot 3$$

$$B: \begin{cases} 16x_0 - 4y - 8 = 0 \\ 4x + 12y - 124 = 0 \end{cases} \quad | \cdot 3$$

$$B: y = 2$$

Berechne

$$\begin{cases} 5x - y - 14 = 0 & | \cdot (-1) \\ 3x + y - 13 = 0 \end{cases}$$

F(8, 1)

$$\begin{cases} -5x + y + 14 = 0 \\ 3x + y - 13 = 0 \end{cases}$$

$$\begin{cases} -2x + 21 = 0 \\ x = 10.5 \end{cases} \quad \begin{cases} 2x + 6 = 0 \\ x = -3 \end{cases} \quad \begin{cases} y = 4 \\ y = 13 \end{cases}$$

? 255 A(-4; 5)

$$\text{d1: } 2x - y + 8 = 0$$

$$\text{d2: } x + 2y + d = 0 \Rightarrow x + 2y - 31 = 0 \quad (\text{Grenze})$$

$$\text{d3: } -4x + 3y - 31 = 0$$

$$\text{ausgetragen: } y = \frac{1}{2}x + \frac{31}{3}$$

$$\text{by } 4B^T = 1:$$

$$k - 7 + 3 + 8 = 0$$

$$6k = -8$$

$$k_2 = -\frac{4}{3}$$

$$y - 5 = -\frac{4}{3}(x+4)$$

$$3y - 15 - 4x - 16 = 0 \Rightarrow 4x + 3y + 31 = 0 \quad (\text{II})$$

$$y - 5 = \frac{3}{4}(x+4) \Rightarrow$$

$$3y - 15 - 4x - 12 = 0 \Rightarrow 3x - 4y + 32 = 0 \quad (\text{I})$$

$$\begin{cases} 2x - y + 8 = 0 \\ 3x + y - 31 = 0 \end{cases}$$

$$2x - y + 8 = 0 \quad |+y$$

$$\begin{cases} 2x + 8 = 0 \\ 3x + 3y - 31 = 0 \end{cases}$$

$$2x + 8 = 0 \quad |:2$$

$$3(x+4) - 3(y-1) = 3x + 12 - 3y + 3 = 0$$

$$3x - 3y + 15 = 0 \quad (\text{III})$$

$$4(x+3) - 4(y-8) = 4x + 12 - 4y + 32 = 0 \quad (\text{IV})$$

261  $Ax + By + C = 0 \rightarrow$  Normalform  $A_1x + B_1y + d = 0$

( $x_0, y_0$ )

$$A(x - x_0) + B(y - y_0) = Ax - Ax_0 + By - By_0 = Ax + By - (A_0x_0 + B_0y_0) =$$
  
$$= Ax + By + d$$

$$A(x - x_0) + B(y - y_0) = Ax + By + d$$

$$\text{Nur } Ax + By + C = 0 \perp Ax_0 + B_0y_0 + d = 0$$

$$\text{Nur } (A_0; B_0) \perp (A; B)$$

$$\overline{n}_2 \cdot \overline{n}_1 = 0$$

$$A_2 A_1 + B_2 B_1 = 0$$

$$\begin{aligned} 283 \quad & 2x + y + 5 = 0 \\ & x - y = 10 \end{aligned}$$

$$\begin{aligned} 284 \quad & \begin{cases} mx + (2m+3)y + m+6 = 0 \\ (2m+1)x + (m-1)y + m-2 = 0 \end{cases} \end{aligned}$$

$\times 20$

$$\begin{cases} (2m+3)y + m+6 = 0 \\ (m-1)y + m-2 = 0 \end{cases}$$

$$y = \frac{2-m}{m-1}$$

$$\frac{(2m+3)(2-m)}{m-1} = -m-6$$

$$\frac{4m^2 + 6m - 2m^2 - 3m}{m-1} = \frac{-m^2 + m - 6m + 6}{m-1}$$

~~1000/2000~~

$$m^2 - 5m - 4m + 3m - 6 + 6 = 0$$

$$m^2 - 6m = 0$$

$$m(m-6) = 0$$

$$\underline{\underline{m=0 \quad m=6}}$$

$$300 \quad 3x - 4y - 12 = 0$$

$$x=0 \quad y=3$$

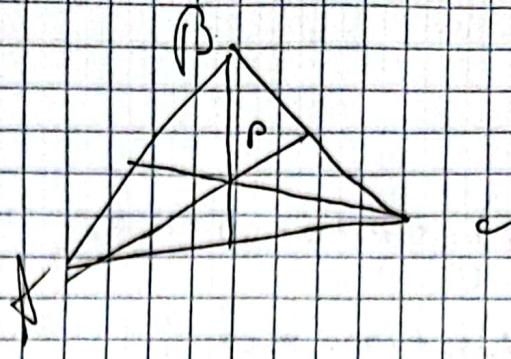
$$y=0 \quad x=4$$

$$\int_2^4 \frac{3x}{2} - 6$$

$$B2: \{x+2y-22=0 \quad |x_4\}$$

$$Bl: 5x+12y+8=0$$

$$A: \{4x-33y+146=0 \quad |x_5\}$$



$$A: \begin{cases} x+2y-22=0 \\ 4x-33y+146=0 \end{cases} \quad |x_4$$

$$\begin{cases} 4x+8y-88=0 \\ 4x-33y+146=0 \end{cases}$$

$$\begin{cases} 112y-234=0 \\ y=2 \end{cases}$$

$$x+42-22=0$$

$$x=20$$

$A(20; 2)$

$$B: \begin{cases} 5x-12y+8=0 \\ 4x-33y+146=0 \end{cases} \quad |x_5$$

$$\begin{cases} 20x-48y+28=0 \\ 20x-168y+280=0 \end{cases}$$

$$\begin{cases} 120y-202=0 \\ y=6 \end{cases}$$

$$\begin{cases} 5x-42+8=0 \\ 5x=65 \\ x=13 \end{cases}$$

$C(13; 6)$

$$B: \begin{cases} x+2y-22=0 \\ 5x-12y+8=0 \end{cases} \quad |x_5$$

$$\begin{cases} 5x+10y-110=0 \\ 5x-12y+8=0 \end{cases}$$

$$112y-118=0$$

$$y=1$$

$$5x-12+8=0$$

$$x=1$$

$B(1; 1)$

$$P_x = \frac{-20+13+1}{3} = -2$$

$P(-2; 3)$

$$P_y = \frac{20+6+1}{3} = 3$$

$$\mu_x = -\frac{1}{5 \cdot 11 \cdot 4} = -\frac{1}{13}$$

$$-\frac{1}{13}(5x - 12y + 7) = -\frac{5 \cdot 5 \cdot (-2) - 12 \cdot 3 + 7}{-13} = \frac{-10 - 36 + 7}{-13} = \frac{39}{-13} = -3$$

~~323~~  
~~P(2,5)~~  
~~A(5,1)~~  
~~C(2,3)~~

$$323 \quad 4x - 3y + 3 = 0$$

$$4x - 3y - 17 = 0$$

$$A(2, -3)$$

$$2 + 9 + 3 = 0$$

$$8 - 9 - 17 = 0$$

$$3. -3x - 4y + c = 0$$

$$-6 + 12 + c = 0$$

$$c = 6$$

$$\mu = \frac{1}{6} \Rightarrow \frac{3}{6}x + \frac{4}{6}y + \frac{6}{6}$$

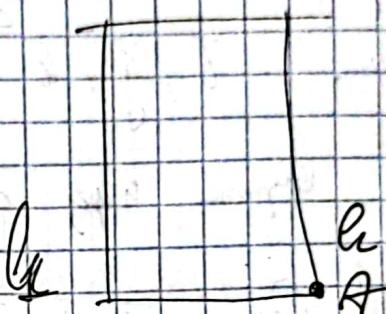
$$d: \frac{20}{6}xy - \frac{3}{3} \cdot 2 - \frac{6}{6} \cdot 3 + \frac{6}{6} = 0$$

$$20 = 6 - 12 + 6$$

$$k = 20$$

$$B: -3x - 4y - 14 = 0$$

$$-3x - 4y + 26 = 0$$



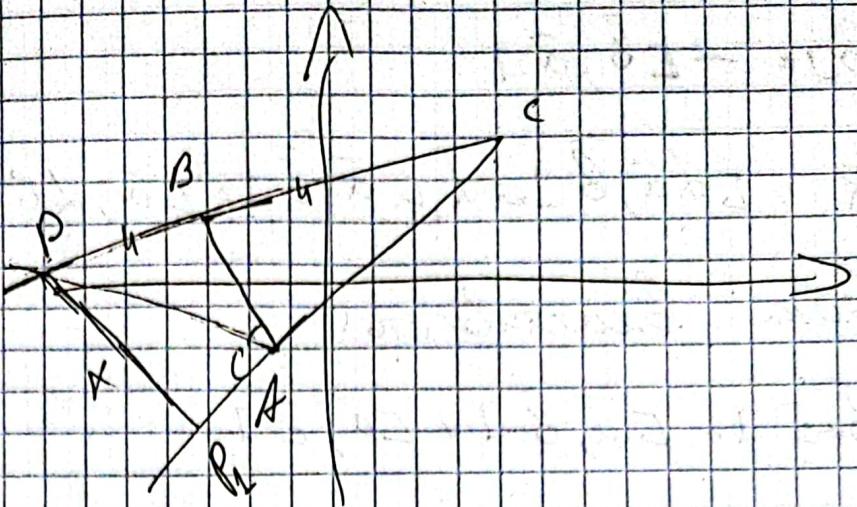
D<sub>3</sub> hypotenuse

g8. A(-1,-1)

B(3;5)

C(-4;1)

P-?



|AC| =  $\sqrt{3^2 + 6^2} = \sqrt{45}$

|AB| =  $\sqrt{4^2 + 6^2} = \sqrt{52}$

|BC| =  $\sqrt{7^2 + 4^2} = \sqrt{65}$

$CB^2 + AC^2 = AB^2 \Rightarrow \angle C = 90^\circ$

$$\frac{CA}{PP_1} = \frac{BA}{BK} \quad PP_1 = x$$

$$\frac{\sqrt{45}}{x} = \frac{\sqrt{52}}{\sqrt{65}}$$

$$x = \sqrt{45}$$

$$x = 2\sqrt{5}$$

$$\frac{PC}{CB} = \frac{1}{2}$$

$$x_1 = \frac{4+3}{2} = 7$$

$$y_1 = -8 - 3$$

$$x_2 = -1$$

$$y_2 = \frac{-4+5}{2} = 1$$

$$y_2 = 2.5$$

$$y_2 = 3$$

$$PC = \sqrt{5}$$

$$322 \quad P(215) ; Q(51), d=3 \quad 2A+5B+c$$

$$\mu = \frac{1}{\sqrt{A^2+B^2}}$$

$$S = \frac{8A+5Bc}{\sqrt{A^2+B^2}} = \pm 3$$

$$\left\{ \begin{array}{l} 8A+5Bc=20 \\ 8A+5Bc=3\sqrt{A^2+B^2} \end{array} \right.$$

$$\left\{ \begin{array}{l} 8A+5Bc=20 \\ 8A+5Bc=3\sqrt{A^2+B^2} \end{array} \right.$$

$$C_2 \rightarrow 2A+5B$$

$$8A+5B - 2A-5B = 3\sqrt{A^2+B^2}$$

$$(3A-4B) = (3\sqrt{A^2+B^2})$$

$$9A^2 - 24AB + 16B^2 = 9A^2 + 9B^2$$

$$9B^2 - 24AB - 16B^2 = 0$$

$$B=0 \quad B = \frac{24A}{16}$$

$$C_2 \rightarrow 2A$$

$$C_2 - (2A - \frac{24A}{16})A = -\frac{13A}{8}A$$

D)  $Ax + ay - 2A = 0$

~~$13Ax + 13ay - 13A = 0$~~

D)  $Ax + \frac{24}{8}Ay - \frac{13A}{8}A = 0$

~~$7Ax + 13ay - 13A = 0$~~

$$3x + 2y - 11 = 0$$

$$3x - 6y - 5 = 0$$

$$M(11-3)$$

$$\frac{|3x+2y-11|}{\sqrt{3^2+2^2}} = \frac{|3x-6y-5|}{\sqrt{3^2+(-6)^2}}$$

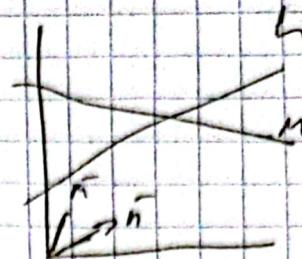
$$3x+2y-11 = \pm \sqrt{13}(x-6)$$

$$12x-28=0$$

$$6x-14=0 \quad y = \frac{8}{3} \quad x = \frac{14}{6}$$

$$d_1 = \frac{8}{3} + 1 = \frac{11}{3}$$

$$d_2 = \frac{9}{3} - 1 = \frac{6}{3}$$



$$m_2 \{ 1, 2, 3 \} / \{ 11 \}$$

$$m_2 \{ 3, 6 \} \cup$$

$$\{ m_2; m_3 = 3 + 12 = 15 \} > 0$$

$$|3x+2y-11| = |3x-6y-5|$$

$$6x-38=0$$

$$12x-28=0$$

$$3x-19=0$$

$$8y-20=0$$

$$P(11; 0) \in l$$

$$d_2 = \sqrt{\frac{13^2 + 14^2}{3^2 + 2^2}} = \frac{9}{3}$$

$$d_1 = \sqrt{\frac{1^2 + 2^2}{3^2 + 2^2}} = \frac{\sqrt{5}}{3}, \quad \frac{8}{3}$$

$$B(y_0; 3x-19=0)$$

~~$$3x + 2y - 11 = 0$$~~

$$\begin{cases} 3x + 2y - 5 = 0 \\ x - 2y = 0 \end{cases}$$

$$C(-1, -2) \quad d=5$$

$$d = \frac{|Ax_0 + By_0 + C|}{\sqrt{A^2 + B^2}}$$

$$L(3x + 2y - 5) + S(x - 2y + 0) = 0 \quad \text{do } \beta \neq 0$$

$$(3d_1\beta)x + (d-2\beta)y - 5d + 10\beta = 0$$

$$(3d_1\beta) \cdot (-1) + (d-2\beta) \cdot (-2) - 5d + 10\beta = 1 - 3d - \beta - 2d + 4\beta - 5d + 10\beta = 0$$

$$= 1 - 10d + 13\beta$$

$$\beta = 1$$

$$(3d_1+2)x + (d-2)y - 5d + 10\beta = 0$$

$$\frac{(3d_1+2)(-1) + (d-2)(-2) - 5d + 10\beta}{(3d_1+2)(-2)} = 0.$$

$$(-10d + 13)^2 = 25(9d^2 + 6d + 2 + 1 - 4d + 4)$$

$$169 - 260d + 100d^2 = 225d^2 + 150d + 25 + 25d^2 - 100d + 100$$

$$169 - 260d + 100d^2 - 225d^2 - 150d - 25 - 25d^2 + 100d - 100 = 0$$

$$-150d^2 - 310d + 4420 = 0$$

$$85d^2 + 155d - 2200 = 0$$

$$D = 24025 + 6600 = 30625$$

$$d_2 = \frac{-155 - 175}{180} = -2,2$$

$$d_2 = \frac{-155 + 175}{150} = \frac{2}{15}$$

~~$$(6,6d_1)x + (4,2)y + 25 = 0$$~~

~~$$-6d_1x + 4,2y + 25 = 0$$~~

$$\left(\frac{9 \cdot 2}{15} + 1\right)x + \left(\frac{2}{15} - 2\right)y - \frac{5 \cdot 2}{15} - 10 = 0$$

~~$$\frac{28}{15}x - \frac{28}{15}y - \frac{28}{3} = 0$$~~

322.  $d_1(5x + 3y - 2) + \beta_1(3x - y - 4) = 0$

$$\beta_2(4x - y + 1) + \beta_3(2x - y - 1) = 0$$

$$\left\{ \begin{array}{l} (5d_1 + 3\beta_1)x + (3d_1 - \beta_1)y - 2d_1 - 4\beta_1 = 0 \\ (d_1 + \beta_1)x + (-d_1 - \beta_1)y + d_1 - 2\beta_1 = 0 \end{array} \right.$$

$$A + B + C = 0$$

$$\begin{cases} 5\alpha_1 + 3\beta_1 = \alpha_1 + 2\beta_1 \\ 3\alpha_2 - \beta_2 = -\alpha_2 - \beta_2 \\ -2\alpha_1 - 4\beta_1 = \alpha_1 - 2\beta_1 \end{cases}$$

$$\begin{matrix} \beta \\ \alpha \end{matrix} \left| \begin{matrix} 3 \\ 1 \end{matrix} \right.$$

$$\begin{cases} 5\alpha_1 + 3\beta_1 = \alpha_1 + 2 \\ 3\alpha_2 - \beta_2 = -1 - 1 \\ -2\alpha_1 - 4\beta_1 = \alpha_1 - 2 \end{cases} \rightarrow \alpha_1 = 5\alpha_2 + 3\beta_2 - 2$$

$$\begin{cases} 3\alpha_2 - \beta_2 = -5\alpha_2 - 3\beta_2 + 2 - 2 \\ -2\alpha_1 - 4\beta_1 = 5\alpha_2 + 3\beta_2 - 4 \end{cases}$$

$$\begin{cases} 8\alpha_1 + 2\beta_1 = 2 \\ -2\alpha_1 - 2\beta_1 = -4 \end{cases} | \times 2$$

$$\begin{cases} 8\alpha_1 + 14\beta_1 = 2 \\ -14\alpha_1 - 14\beta_1 = -8 \end{cases}$$

$$4\alpha_1 = 2$$

$$\alpha_1 = -\frac{1}{4}$$

$$\beta_1 = \frac{1-8\alpha_1}{2} = \frac{1+\frac{8}{4}}{2} = \frac{25}{2} = \frac{25}{2} \cdot \frac{1}{2} = \frac{25}{4}$$

$$-\frac{1}{4}(5x+3y-2) + \frac{25}{4}(3x-y-4) = 0$$

$$-5x - 3y + 2 + 25x - 25y - 100 = 0$$

$$20x - 28y - 98 = 0 | : 14$$

$$\cancel{5x - 1 - 7 = 0}$$

$$368. 2(2x - 3y + 2) + 5(3x + 5y - 24) = 0$$

$$10x - 15y + 16 = 0$$

$$\begin{cases} 10x - 15y + 16 = 0 \\ 3x + 5y - 24 = 0 \end{cases} | \times 3$$

$$\begin{cases} 10x - 15y + 16 = 0 \\ 9x + 15y - 72 = 0 \end{cases}$$

$$19x + 16 = 0$$

$$x = -1$$

$$y = 6 \quad 2A(-1, 6)$$

$$ch \cdot 2x - y - c = 0$$

$$2(-1) - 6 = c$$

$$c = -13$$

$$\rightarrow 2x - y + 13 = 0$$

$$\begin{cases} x+y-16=0 \\ 2x-y+13=0 \end{cases} | \times 2$$

$$\begin{cases} x+y-16=0 \\ 4x-2y+26=0 \end{cases}$$

$$8x+26=0$$

$$x = -1,5$$

$$y = R, S$$

$$(0, -1,5, 2,5)$$

$$\Delta x = x_0 - x_1 = -0,5$$

$$\Delta y = y_0 - y_1 = -3,5$$

$$x_c = x_0 + \Delta x$$

$$y_c = y_0 + \Delta y$$

$$2x - 3y + 20 + 2(3x + 5y - 27) = 0$$

$$2x - 3y + 20 + 3xR + 5yR - 22R = 0$$

$$x(2+3R) + y(5R-3) + (20-22R) = 0$$

$$k_{1,2} \quad k_1 = \frac{2+3R}{3-5R}$$

$$\frac{\frac{2+3R}{3-5R} - 2}{1 + \frac{2(2+3R)}{3-5R}} = 1$$

$$\frac{\frac{2+3R}{3-5R} - 2}{1 + \frac{2(2+3R)}{3-5R}} = 1 + \frac{2(2+3R)}{3-5R}$$

$$\frac{\frac{2+3R}{3-5R} - 2 + 3R}{1 + \frac{2(2+3R)}{3-5R}} = \frac{3-5R + 14R + 22R}{3-5R}$$

$$2+3R - 22R - 35R = 23-8R + 14R + 22R$$

$$2R = 3R \Rightarrow R = \frac{13}{11}$$

$$(2+3 \cdot \frac{13}{11}) \lambda + y \left( \frac{5 \cdot 13}{11} - 3 \right) + (20 - \frac{22 \cdot 13}{11}) = 0$$

$$\frac{22+5y}{11} + \frac{5y}{11} + \left( \frac{120-4y}{11} \right) = 0$$

$$26 + 5y - 120 = 0 \quad | +120$$

$$\underline{4x + 3y = 1120}$$

$$4x + 3y = 1120$$

$$C_3 = 843 = 11$$

$$\underline{4x + 3y = 1120}$$

$$3x - 4y + 2 = 0$$

$$C_1 = 6y = 2 \rightarrow \underline{3x - 4y + 2 = 0}$$

$$C_3 = 24 + 3$$

→

$$\underline{3x - 4y + 24 = 0}$$