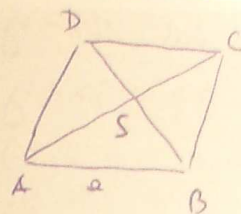


ZAD 6.13 e

$$AB: x - 2y - 5 = 0$$

$$AD: 2x - y - 1 = 0$$

$$BD: x + y - 2 = 0$$



POSZUKAJE NADPISY WIERZCHOŁOWY TAKO
PUNKTÓW LEŻĄCYCH NA PRZECIĄCZACH^{SIĘ} PROSTYCH

1. AB ∩ AD (WIERZCHOŁEK A)

$$\begin{cases} x - 2y - 5 = 0 \\ 2x - y - 1 = 0 \end{cases} \quad A \begin{pmatrix} x_A & y_A \\ -1 & -3 \end{pmatrix}$$

$$\begin{cases} x - 2y = 5 \\ 2x - y = 1 \rightarrow y = 2x - 1 = -2 - 1 = -3 \end{cases}$$

$$x - 4x + 2 = 5$$

$$-3x = 5 - 2$$

$$-3x = 3 : (-3)$$

$$x = -1$$

2. AB ∩ BD (WIERZCHOŁEK B)

$$\begin{cases} x - 2y = 5 \\ x + y = 2 \rightarrow x = 2 - y = 2 + 1 = 3 \end{cases}$$

$$2 - y - 2y = 5$$

$$-3y = 5 - 2$$

$$-3y = 3 : (-3)$$

$$y = -1$$

$$B \begin{pmatrix} x_B & y_B \\ 3 & -1 \end{pmatrix}$$

3. AD ∩ BD (WIERZCHOŁEK D)

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

$$2(2 - y) - y = 1$$

$$4 - 2y - y = 1$$

$$-3y = 1 - 4$$

$$-3y = -3 : (-3)$$

$$y = 1$$

$$D \begin{pmatrix} x_D & y_D \\ 1 & 1 \end{pmatrix}$$

DOŁC AB

$$AB = \sqrt{(x_B - x_A)^2 + (y_B - y_A)^2} =$$

$$= \sqrt{(3 + 1)^2 + (-1 + 3)^2} =$$

$$= \sqrt{4^2 + (-2)^2} = \sqrt{16 + 4} = \sqrt{20} = 2\sqrt{5}$$

PRZELATNA DB

$$DB = \sqrt{(x_B - x_D)^2 + (y_B - y_D)^2} =$$

$$= \sqrt{(3 - 1)^2 + (-1 - 1)^2} =$$

$$= \sqrt{2^2 + (-2)^2} = \sqrt{4 + 4} = \sqrt{8} = 2\sqrt{2}$$

WZNIKŁE ŚRODEK

$$S(x_S, y_S)$$

$$x_S = \frac{x_D + x_B}{2} = \frac{1 + 3}{2} = 2$$

$$y_S = \frac{y_D + y_B}{2} = \frac{1 - 1}{2} = 0$$

PRZELATNA DŁUGOŚĆ

$$|AC| = 2 \cdot |AS| = 6\sqrt{2}$$

$$|AS| = \sqrt{(x_S - x_A)^2 + (y_S - y_A)^2} =$$

$$= \sqrt{(2 + 1)^2 + (0 + 3)^2} =$$

$$= \sqrt{3^2 + 3^2} = \sqrt{9 + 9} = \sqrt{18} = 3\sqrt{2}$$