

Zadatak 19. Dvije stranice paralelograma pripadaju pravcima $x - 5y - 14 = 0$ i $7x - y + 4 = 0$, a jedna njegova dijagonala je na pravcu $3x + 2y - 8 = 0$. Odredi vrhove tog paralelograma.

Rješenje.

$$p \dots x - 5y - 14 = 0 \implies y = \frac{1}{5}x - \frac{14}{5}$$

$$q \dots 2x - y + 4 = 0 \implies y = -7x - 4$$

$$e \dots 3x + 2y - 8 = 0 \implies y = -\frac{3}{2}x + 4$$

$$\{A\} = p \cap q \dots \frac{1}{5}x - \frac{14}{5} = 7x + 4 \quad / \cdot 5$$

$$x - 14 = 35x + 20$$

$$34x = -34$$

$$x = -1$$

$$y = -7 + 4$$

$$y = -3 \implies A(-1, 3)$$

$$\{B\} = q \cap e \dots 7x + 4 = -\frac{3}{2}x + 4 \quad / \cdot 2$$

$$14x + 8 = -3x + 8$$

$$15x = 0$$

$$x = 0$$

$$y = 7 \cdot 0 + 4$$

$$y = 4 \implies B(0, 4)$$

$$\{D\} = p \cap e \dots \frac{1}{5}x - \frac{14}{5} = -\frac{3}{2}x + 4 \quad / \cdot 10$$

$$2x - 28 = -15x + 40$$

$$17x = 68$$

$$x = 4$$

$$y = -\frac{3}{2} \cdot 4 + 4$$

$$y = -2 \implies D(4, -2)$$

$$s \parallel p, B \in s \implies y - 4 = \frac{1}{5}(x - 0) \quad / \cdot 5$$

$$5y - 20 = x$$

$$x - 5y + 20 = 0$$

$$t \parallel q, D \in t \implies y + 2 = 7(x - 4)$$

$$y + 2 = 7x - 28$$

$$7x - y - 30 = 0$$

$$\{C\} = s \cap t \dots \frac{1}{5}x + 4 = 7x - 30 \quad / \cdot 5$$

$$x + 20 = 35x - 150$$

$$-34x = -170$$

$$x = 5$$

$$y = 35 - 30$$

$$y = 5 \implies C(5, 5)$$