

Zadatak 23. Dva vrha trokuta ABC točke su $A(-1, -1)$ i $B(4, 5)$, a vrh C leži na pravcu $y = 5x - 15$. Ako je površina trokuta ABC jednaka $\frac{19}{2}$, odredi vrh C .

Rješenje.

$$A(-1, -1)$$

$$B(4, 5)$$

$$C \in p \dots y = 5x - 15 \implies C(x_3, 5x_3 - 15)$$

$$P = \frac{19}{2}$$

$$C = ?$$

$$P = \frac{1}{2} |x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)|$$

$$\frac{19}{2} = \frac{1}{2} |(-1)(5 - 5x_3 + 15) + 4(5x_3 - 15 + 1) + x_3(-1 - 5)|$$

$$\frac{19}{2} = \frac{1}{2} |-20 + 5x_3 + 20x_3 - 56 - 6x_3|$$

$$\frac{19}{2} = \frac{1}{2} |19x_3 - 76| \quad / \cdot 2$$

$$19 = |19x_3 - 76|$$

$$1) \quad 19x_3 - 76 = -19$$

$$19x_3 = 57$$

$$x_3 = 3$$

$$y_3 = 5x_3 - 15$$

$$y_3 = 0$$

$$C(3, 0)$$

$$2) \quad 19x_3 - 76 = 19$$

$$19x_3 = 95$$

$$x_3 = 5$$

$$y_3 = 5x_3 - 15$$

$$y_3 = 10$$

$$C(5, 10)$$