

$$f(x, y) = x^2 + y^2; \quad D = \{(x, y) : |x| + |y| \leq 2\}$$

$$\underbrace{(x^2 + y^2)}_{y=0} = (x^2)^2$$



$$|x| + |y| \leq 2$$

$$1^{\circ} x, y \geq 0: \quad \begin{cases} x + y \leq 2 \\ y \leq 2 - x \end{cases}$$

1. punkty stacjonarne wewn. D :

$$f'_x = 2x = 0; \quad f'_y = 2y = 0, \quad \text{czyli p. stacjonarnym jest } (0, 0), \text{ jest on wewn\u0105trz } D, \text{ wiec liczymy: } f(0, 0) = 0$$

2. badamy f na brzegu D

$$\text{mamy 4 funkcje pomocnicze, np. } h_1(x) = f(x, 2-x), \quad x \in [0, 2]$$

$$h_2(x) = f(x, x+2), \quad x \in [-2, 0]$$

...

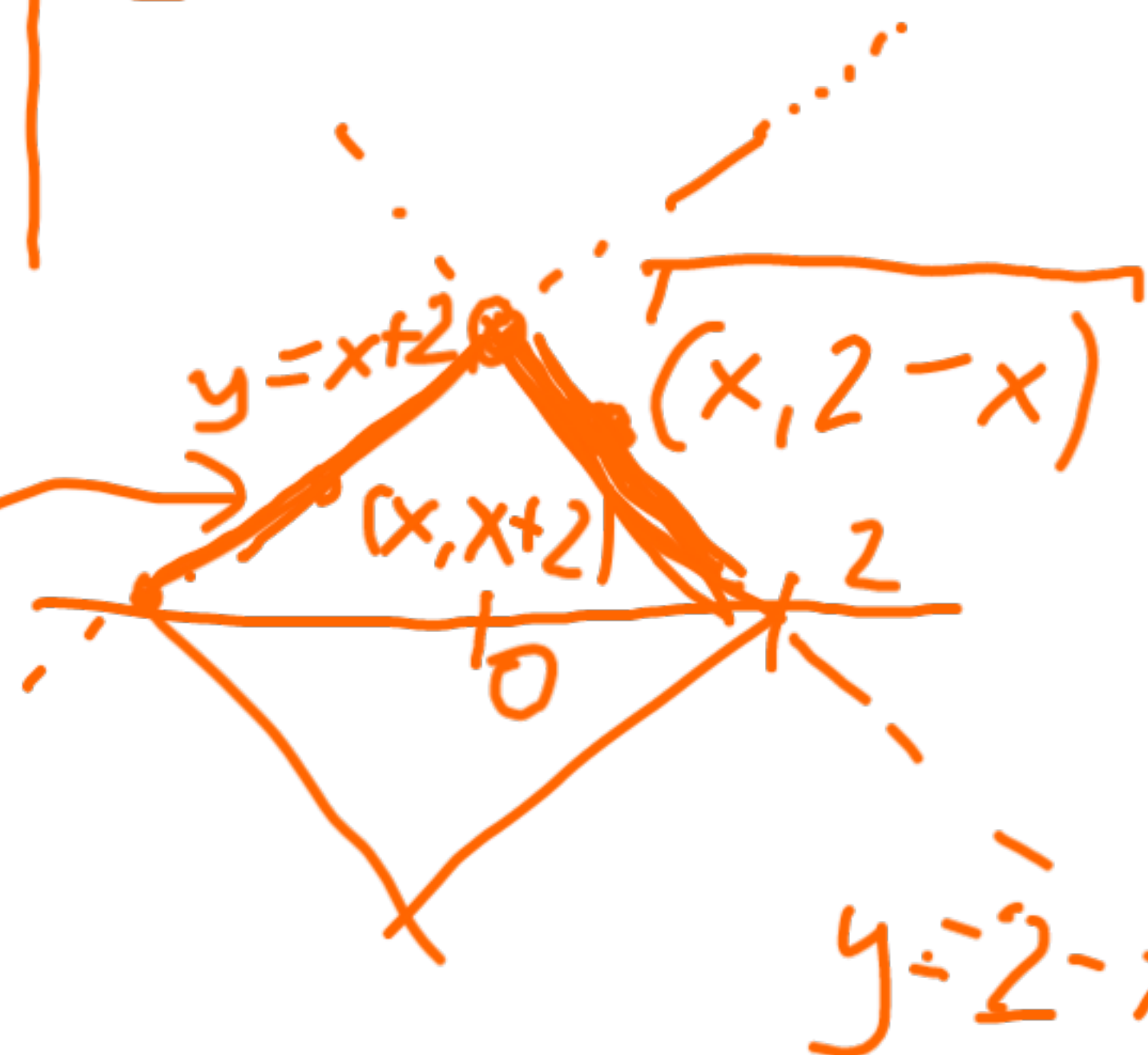
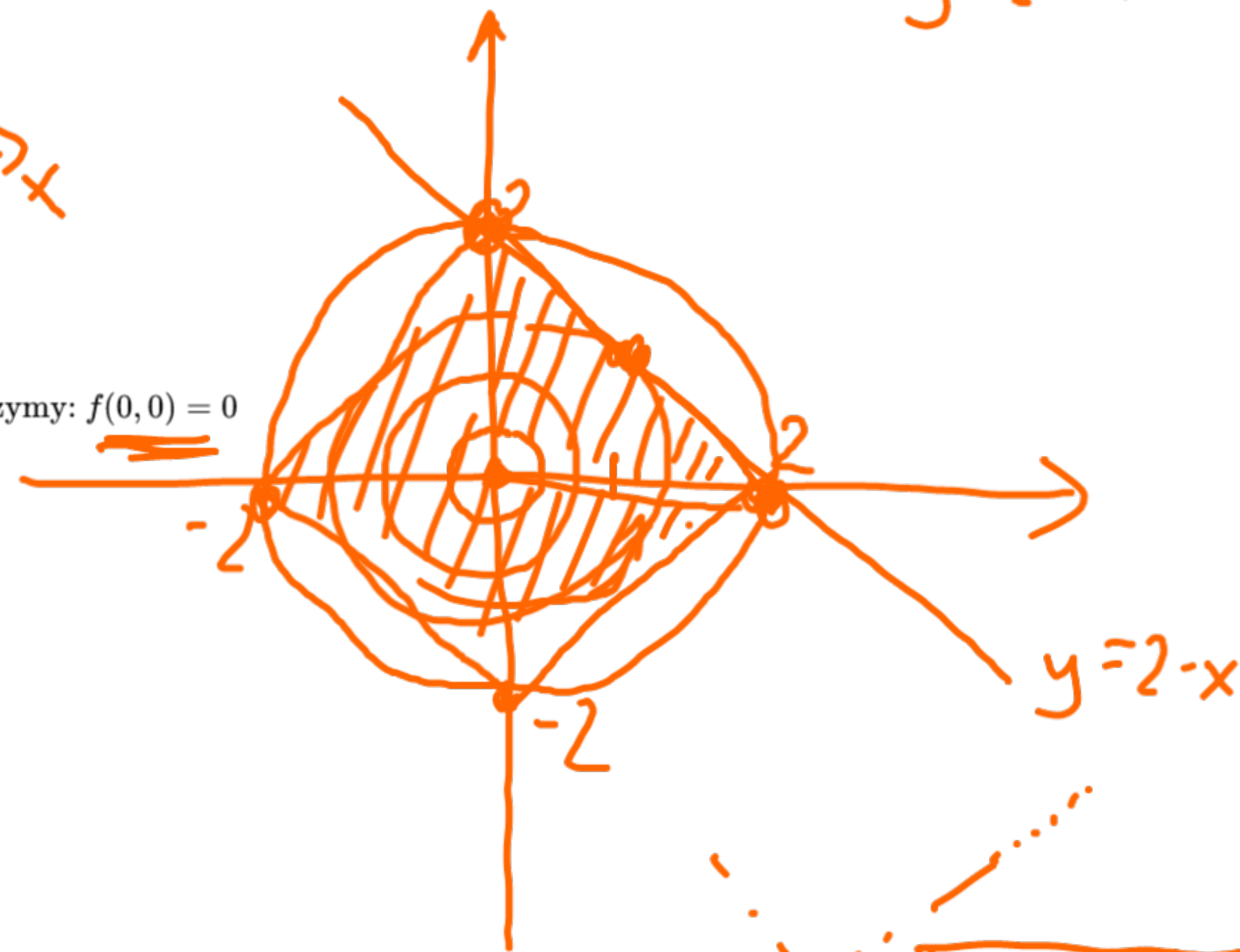
$$h_1(x) = x^2 + (2-x)^2 = 2x^2 - 4x + 4;$$

$$h'_1(x) = 4x - 4 = 0, \quad \text{gd\u0119 } x = 1$$

$$h_1(1) = 2 - 4 + 4 = 2, \quad h_1(0) = 4, \quad h_1(2) = 4$$

$$h_2, h_3, h_4 \dots$$

$$\text{Odp. } 0; 4$$



$$\begin{aligned} x \leq 0, y \geq 0 \\ |x| + |y| = 2 \\ -x + y = 2 \end{aligned}$$

$$\begin{aligned} y = x + 2 \\ \underline{\quad\quad\quad} \\ x \in [-2, 0] \end{aligned}$$