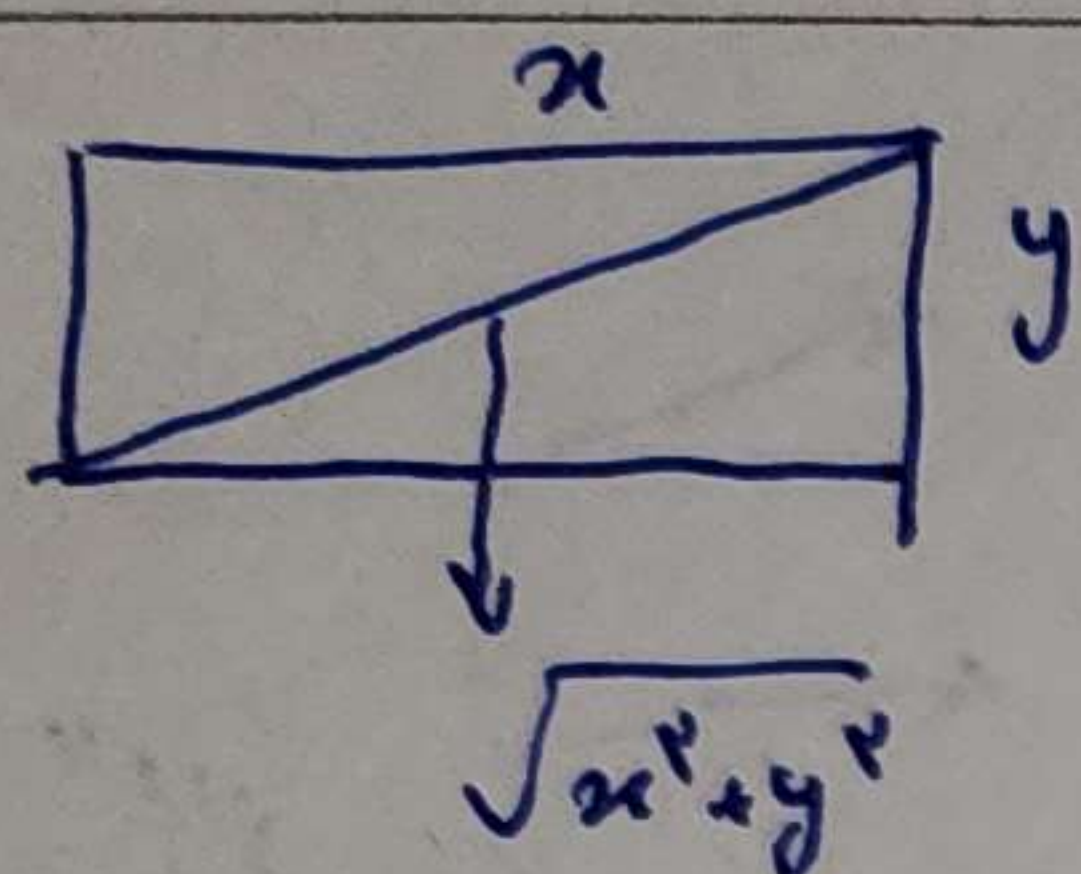
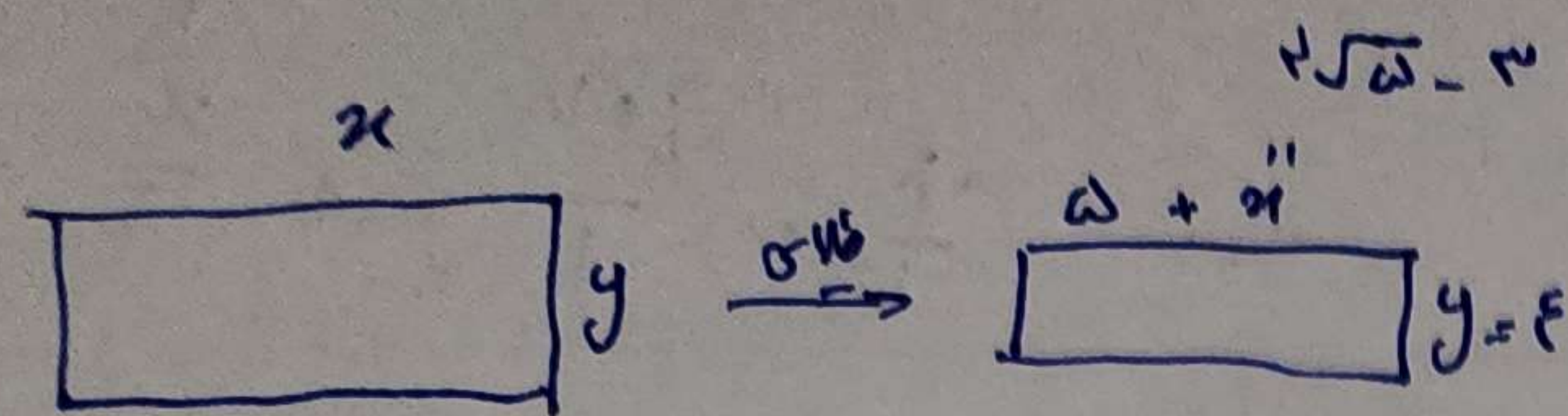


$$\frac{x}{y} = \frac{1+\sqrt{5}}{2} \Rightarrow \frac{\omega+x}{\omega} = \frac{1+\sqrt{5}}{2}$$

$$\frac{(\omega+2\sqrt{5}-3) \times 4}{4 \times 5} = \frac{1+1\sqrt{5}}{2}$$

$$10+2x = 4+4\sqrt{5} \Rightarrow 2x = 4\sqrt{5}-6 \Rightarrow x = 2\sqrt{5}-3$$



$$\frac{\sqrt{x^2+y^2}}{x} = \frac{1+\sqrt{5}}{2} \Rightarrow 2\sqrt{x^2+y^2} = x+x\sqrt{5}$$

$$\begin{aligned} 2\omega \rightarrow 4x^2 + 4y^2 &= x^2 + 5x^2 + 4\sqrt{5}x^2 \\ 4y^2 &= x^2(2+2\sqrt{5}) \quad \left(\frac{x}{y}\right)^2 = \frac{2}{1+\sqrt{5}} \end{aligned}$$

$$2-3a = \sqrt{2a^2+4a} \rightarrow 4+9a^2-12a = 2a^2+4a \Rightarrow 2a^2-16a+10=0$$

$$\begin{aligned} a^2-16a+10 &= 0 \\ (a-2)(a-14) &= 0 \\ a &= \frac{2}{1} \quad \left(a < \frac{2}{1}\right) \\ a+1 &= \frac{4}{2} = 2 \end{aligned}$$

$$D_f = x > 1 \quad \left. \begin{aligned} t &= \sqrt{x-1} \\ \sqrt{x+1} &= \sqrt{t^2+2} \end{aligned} \right\} \Rightarrow \frac{\sqrt{t^2+2}}{t+2} - \frac{\sqrt{t^2+2}}{2-t} = t$$

$$\begin{aligned} x &= t^2+1 = 12+4\sqrt{3} \\ 11+4\sqrt{3} \end{aligned}$$

$$\left. \begin{aligned} \sqrt{t^2+2} \left(\frac{1}{t+2} - \frac{1}{2-t} \right) &= t \\ \frac{-2t}{2-t^2} &= t \end{aligned} \right\} \Rightarrow \frac{-2t\sqrt{t^2+2}}{2-t^2} = t \rightarrow \frac{-2\sqrt{t^2+2}}{2-t^2} = 1 \rightarrow 2\sqrt{t^2+2} = t^2-2$$

$$\rightarrow 4t^2+8 = t^4-4t^2+4 \rightarrow t^4-8t^2-4 = 0 \xrightarrow{t^2=y} y^2-8y-4 = 0 \rightarrow y = 11 \pm 4\sqrt{3}$$

$$\sqrt{2-x} = t \Rightarrow \frac{1}{t+2} - \frac{1}{2-t} = \frac{t}{\omega t} \Rightarrow \frac{-2t}{(t+2)(t-2)} = \frac{t}{\omega}$$

$$\begin{aligned} \frac{-2}{(4-t^2)} &= \frac{1}{\omega} \Rightarrow -10 = 4-t^2 \quad t^2 = 14 \quad 2-x = 14 \quad -x = 12 \rightarrow x = -12 \end{aligned}$$

$$D_f = \{x \neq 0, \pm 1\}$$

$$\frac{(1-x)^2 + x^2}{(1-x)^2 x^2} = \frac{190}{9}$$

$$\frac{2x^2 - 2x + 1}{x^2 - 2x + x^2} = 190x^2 - 220x + 190x^2$$

$$190x^2 - 220x + 190x^2 + 11x - 9 = 0$$

$$(5x-3)(5x-1)(10x^2-10x-3) = 0$$

$$10x^2 - 10x - 3 = 0$$

$$x = \frac{m}{f} > \frac{1}{f}$$

$$\Delta = 100 + 120 = 220$$

$$\frac{10 \pm \sqrt{220}}{20} = \frac{\omega \pm \sqrt{\omega\omega}}{10}$$

$$\frac{m}{f} + \frac{1}{f} + \frac{\omega - \sqrt{\omega\omega} + \omega + \sqrt{\omega\omega}}{10} = 2$$

$$\sqrt{-x^2 + 4x - 1} \geq 0 \Rightarrow -x^2 + 4x - 1 \geq 0$$

$$1 < x \leq 5$$

$$\sqrt{-x^2 + 4x + 2\omega x - 1} = \sqrt{-(x-5)(x-\omega)(x+\omega)} \geq 0$$

$$\wedge \Rightarrow x = 5$$

$$\text{if } x = 5 \Rightarrow \sqrt{14 + \sqrt{-14 + 22 - 1}} = 4$$

$$x = 5$$

$$2y + x = 14 \Rightarrow y = \frac{-x + 14}{2}$$

$$\begin{cases} x \geq 1 \\ -1 < x < 1 \\ x \leq -1 \end{cases}$$

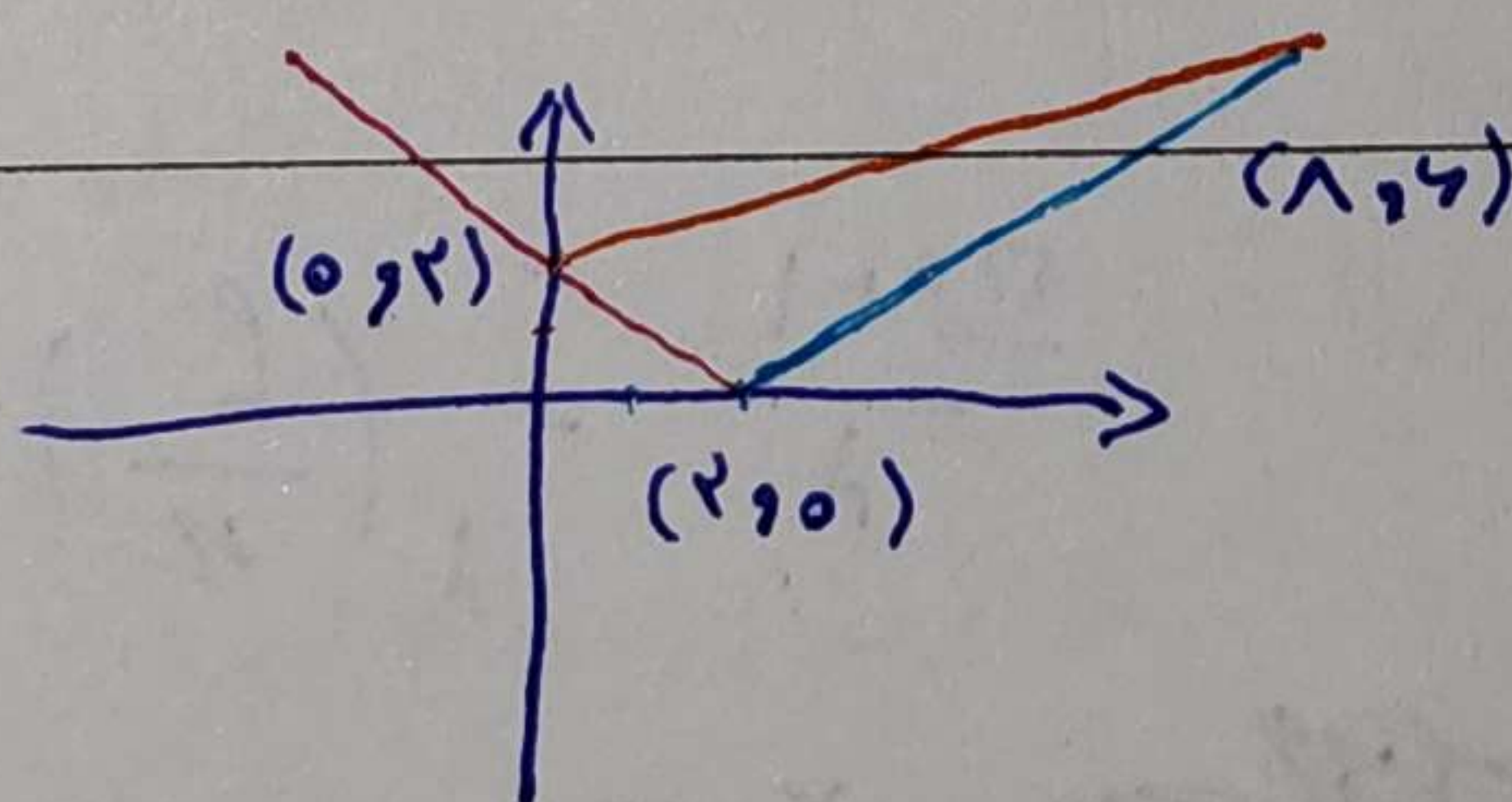
$$\begin{cases} 2x+1 \\ x \\ -2x-1 \end{cases}$$

$$x \geq 1 \quad 2x+1 = \frac{-x+14}{2} \Rightarrow 4x+2 = -x+14 \Rightarrow 5x = 12 \Rightarrow x = \frac{12}{5} \rightarrow y = \omega$$

$$(x, \omega)$$

$$\sqrt{(x-2)^2} = |x-2| = \begin{cases} x-2 & x \geq 2 \\ 2-x & x < 2 \end{cases}$$

$$\begin{aligned} x-2 &= 2-x \Rightarrow x=2, y=0 \\ x-2 &= \frac{1}{2}x+2 \Rightarrow x=4, y=1 \\ 2-x &= \frac{1}{2}x+2 \Rightarrow x=0, y=2 \end{aligned}$$



$$S = \frac{1}{2} \begin{vmatrix} 1 & 2 & 1 \\ 2 & 0 & 1 \\ 0 & 2 & 1 \end{vmatrix} = \frac{1}{2} \times 22 = 11$$

$$\frac{1}{x} + \frac{1}{x+9} = \frac{1}{20}$$

$$\frac{x+9+x}{x^2+9x} = \frac{1}{20} \Rightarrow 20x + 180 + 20x = x^2 + 9x$$

$$x^2 - 21x - 180$$

$$(x-24)(x+9)$$

$$\begin{matrix} 24 \\ \vee \end{matrix}$$

$$\begin{matrix} -9 \\ \vee \end{matrix}$$