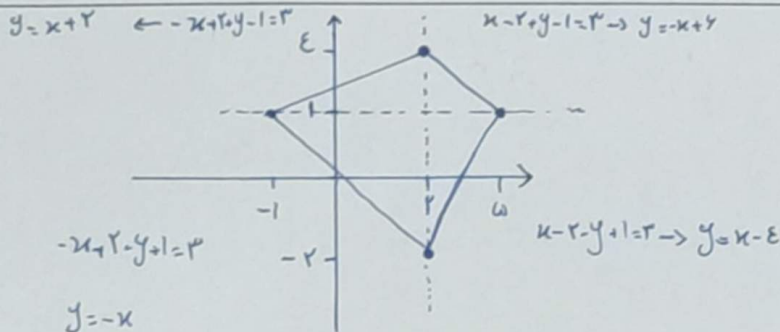
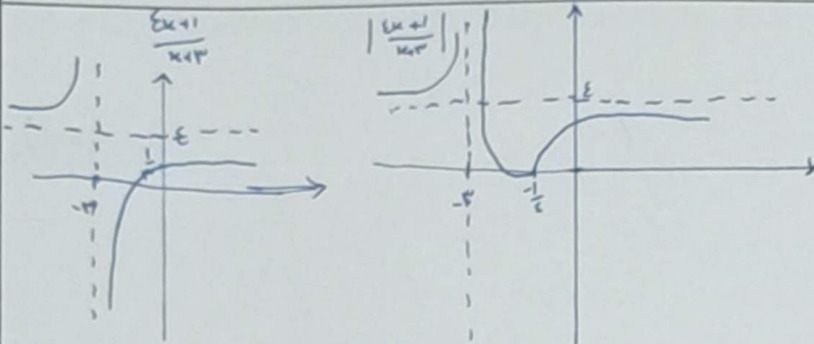
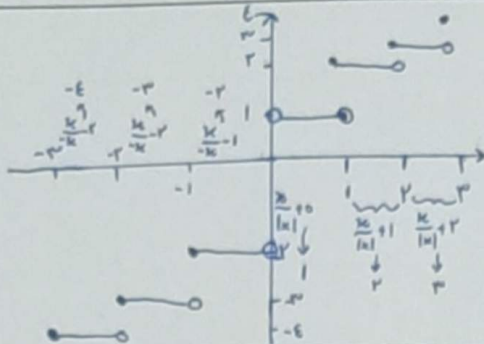


الف)  $0 \leq \sin^2(x + \frac{\pi}{4}) \leq 1 \rightarrow 0 \leq 2\sin^2(x + \frac{\pi}{4}) \leq 2 \rightarrow -1 \leq 2\sin^2(x + \frac{\pi}{4}) - 1 \leq 1 \rightarrow R = [-1, 1]$

ب)  $-1 \leq \cos^2 x \leq 1 \rightarrow -3 \leq 3\cos^2 x \leq 3 \rightarrow -7 \leq 3\cos^2 x - 4 \leq -1 \rightarrow R = [-7, -1]$



$x + \frac{1}{x} \geq 2, x + \frac{1}{x} \leq -2 \rightarrow$  الف)  $\sqrt{x + \frac{1}{x}} = t \xrightarrow{t \geq 0} t^2 + \frac{1}{t^2} \xrightarrow{t \rightarrow \infty} +\infty$   
 $\xrightarrow{t \rightarrow 0} -\infty$   
 $\Rightarrow R = [\sqrt{2}, +\infty)$

ب)  $y = -\sin^2 x + 2\sin x + 3$   
 $\xrightarrow{\max} -1 + 2 + 3 = 4$   
 $\xrightarrow{\min} -1 - 2 + 3 = 0$   
 $\rightarrow R = [0, 4]$

$$D = \{1, 2, 3, 4, 5, 6, 7, 8, 9\} \rightarrow 9(10) - \frac{1}{4}(1+2+3+\dots+9) = 90 - \frac{45}{4} \rightarrow 90 - 11.25 = 78.75$$

6

$$\xrightarrow{\text{Zeit}} a=0 \rightarrow \frac{rb+c=1}{rb+c=0} \rightarrow \sqrt{2r^2 + \varepsilon} \rightarrow \frac{-b}{ra} = 0 \rightarrow \left|_t^0 \rightarrow \sqrt{t, 100} = [r, 100]$$

V

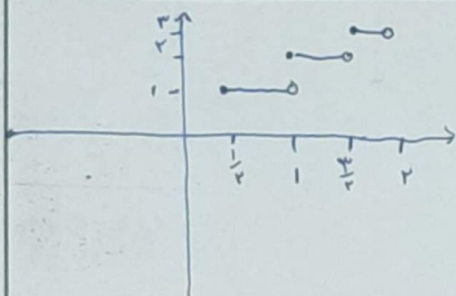
$$\begin{aligned}
 & \kappa + \gamma \neq 0 \rightarrow \kappa \neq -\gamma \rightarrow \alpha \neq -\gamma \rightarrow \frac{\kappa(\kappa^r - \varepsilon)}{\kappa + \gamma} = \frac{\kappa(\cancel{\kappa + \gamma})(\kappa - \gamma)}{\cancel{\kappa + \gamma}} = \kappa(\kappa - \gamma) \xrightarrow{\text{mod}} \kappa^r - \gamma\kappa \Rightarrow (\kappa - 1)^r - 1 \rightarrow C = -1 \\
 & \text{Euler} \\
 & f\left(\frac{-\gamma + \sqrt{\gamma^2 - 4\varepsilon}}{-\gamma}\right) = f\left(\frac{-\gamma \pm \sqrt{\gamma^2 - 4\varepsilon}}{-\gamma}\right) = \frac{-\gamma \pm \sqrt{\gamma^2 - 4\varepsilon}}{-\gamma} = \frac{\gamma \mp \sqrt{\gamma^2 - 4\varepsilon}}{\gamma} = \mu \\
 & \begin{aligned}
 & \kappa^r - \gamma\kappa = 1 \\
 & \downarrow \\
 & \kappa^r - \gamma\kappa - 1 = 0 \\
 & (\kappa + \gamma)(\kappa - \varepsilon) = 0 \\
 & \downarrow \\
 & b = \varepsilon
 \end{aligned}
 \end{aligned}$$

人

$$\rightarrow \sqrt{(x-r)^2} = x-r \rightarrow x'' - 9x' + 17x - 11 \rightarrow a = -9, b = 17 \rightarrow [-9, 17]$$

$$\rightarrow R = [-1, 1]$$

9



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1.