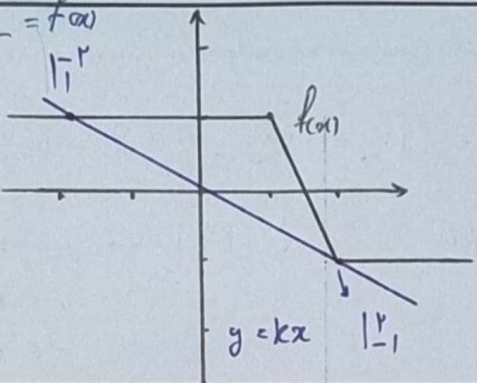
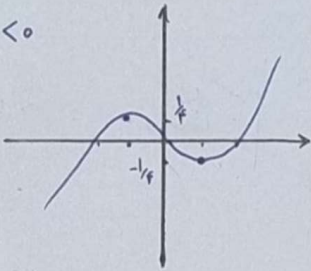
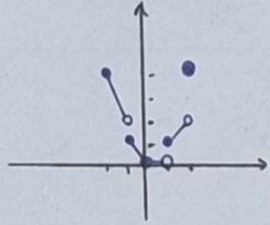


<p>(ب) $\log y = \sin x + 4$</p> <p>\downarrow</p> <p>$-1 \leq \sin x \leq 1 \rightarrow 3 \leq \sin x + 4 \leq 5$</p> <p>طبق ترتیب \log : $y \in [10^3, 10^5]$</p>	<p>(الف) $(2\frac{x}{y} - 2[\frac{x}{y}]^2 - (2(\frac{x}{y} - [\frac{x}{y}]))^2)$</p> <p>$\frac{x}{y} - [\frac{x}{y}] \rightarrow 0 \leq R < 1$</p> <p>$0 \leq R < 2$</p> <p>$0 \leq R < 4$</p> <p>توان ۲</p>	<p>۱</p>
<p>$\sqrt{\frac{x^2-4}{x^2-9}}$</p> <p>$\min = 0 \rightarrow \frac{4}{9}$</p> <p>$\max = +\infty \rightarrow 1$</p> <p>مخرج منفی و صورت مثبت $\rightarrow (-\infty, \frac{2}{3}] \cup (1, +\infty)$</p> <p>بر دلیل اینکه $\rightarrow [0, \frac{2}{3}] \cup (1, +\infty) \rightarrow a+b+c = 1 + \frac{2}{3} = \frac{5}{3}$</p>	<p>۲</p>	<p>۲</p>
<p>(ب) $-\sin^2 x + 2\sin x + 3 = y$</p> <p>بر مبنای \sin : $\begin{cases} \max(\sin) = 1 \rightarrow f \\ \min(\sin) = -1 \rightarrow \cdot \\ \frac{-b}{2a} = 1 \rightarrow f \end{cases}$</p> <p>$R: [0, 4]$</p>	<p>(الف) $(\sqrt{x+\frac{1}{x}} + 1)^2 - 1 = y$</p> <p>$\sqrt{x+\frac{1}{x}} \rightarrow \sqrt{2} \leq R$</p> <p>$\sqrt{x+\frac{1}{x}} + 1 \rightarrow \sqrt{2} + 1 \leq R$</p> <p>$(\sqrt{x+\frac{1}{x}} + 1)^2 \rightarrow 3 + 2\sqrt{2} \leq R$</p> <p>$(\sqrt{x+\frac{1}{x}} + 1)^2 - 1 \rightarrow 2 + 2\sqrt{2} \leq R$</p>	<p>۳</p>
<p>$0, \frac{1}{2}, \dots, 1$ $\Rightarrow -\frac{1}{3}x + 10 \rightarrow -\frac{1}{3}(1+2+3+\dots+9) + 10 =$</p> <p>$\rightarrow -\frac{1}{3}(45) + 10 = -15 + 10 = -5$ مجموع اعداد فرد</p>	<p>۴</p>	<p>۴</p>
<p>از آن جایی که ضرایب متساوی است</p> <p>$x = 2$ با توجه به یک است در ax^2، ضریب a صفر است</p>	<p>$bx + c$</p> <p>$2b + c = 0$</p> <p>$3b + c = 1$</p> <p>$\rightarrow b = 1, c = -2$</p> <p>$\rightarrow \sqrt{x^2+4} \rightarrow F \leq x^2+4 \xrightarrow{\text{رایج}} [2, +\infty)$</p>	<p>۵</p>

$(x-2) - (x-1) = y = f(x)$ <p>2 → 1 نزول</p> <p>اضلاع، صا $2-1=1$</p> 	$y = kx = \frac{1}{2}x$ $k = \frac{1}{2}$	٤
$f(x) = \begin{cases} x^2 - x & x \geq 0 \\ -x^2 - x & x < 0 \end{cases}$  <p>$R: \mathbb{R}$</p>	<p>(الف)</p> $\begin{aligned} -2 \leq x < -1 &\rightarrow -2x \\ -1 \leq x < 0 &\rightarrow -x \\ 0 \leq x < 1 &\rightarrow 0 \\ 1 \leq x < 2 &\rightarrow x \\ x = 2 &\rightarrow f \end{aligned}$  <p>$R: [0, 2] - \{2\}$</p>	٧
<p>دامنه: $R - \{0, -1\}$</p> <p>مخرج: $\frac{2x+2}{x^2+x} = \frac{2(x+1)}{x(x+1)} = \frac{2}{x}$</p> <p>بردار: $R - \{0, -2\}$ $-2+0 = -2$</p>	$\begin{cases} x = -1 \rightarrow -2 & X \\ x = 0 \rightarrow 0 & X \end{cases}$	٨
$f(x) = \frac{x - \sqrt{x} + 2}{x - \sqrt{x} + 1} = \frac{(\sqrt{x}-1)(\sqrt{x}-2)}{(\sqrt{x}-1)(\sqrt{x}-1)} = \frac{\sqrt{x}-2}{\sqrt{x}-1}$ <p>\sqrt{x} → max = $+\infty$ → 1 min = 0 → 2</p> <p>مخرج و مقعر → $R: (-\infty, 1) \cup [2, +\infty)$</p>		٩
$\begin{array}{r l} x^3+2x^2-x-2 & x^2-1 \\ x^3 & -x \\ \hline 2x^2-2 & \\ 2x^2-2 & \\ \hline 0 & \end{array}$	$\frac{(x^2-1)(x+2)}{(x^2-1)} = x+2 \rightarrow x \neq \mathbb{R} \quad x \neq \pm 1$ $\begin{cases} x = 1 \rightarrow 1+2 = 3 \\ x = -1 \rightarrow -1+2 = 1 \end{cases} \rightarrow x: R - \{1, 3\}$	١٠