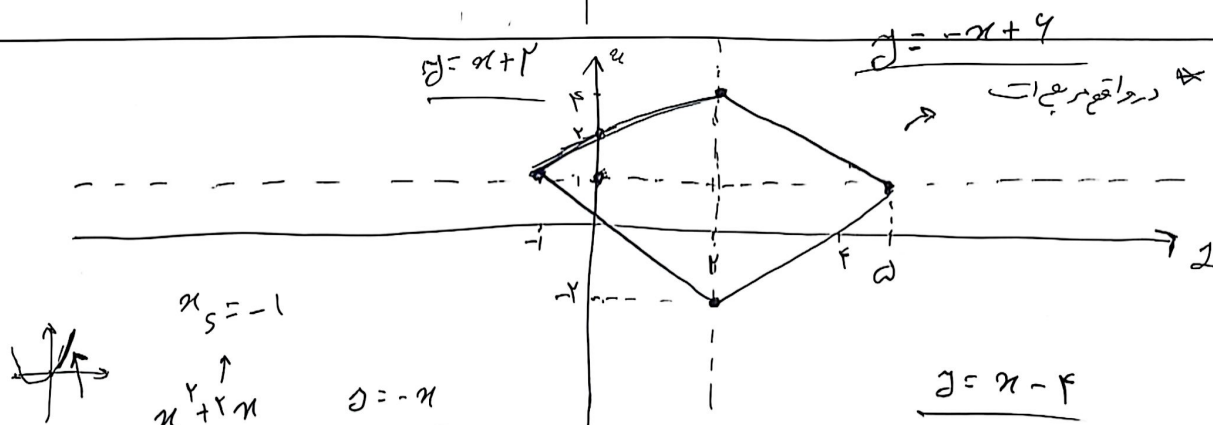
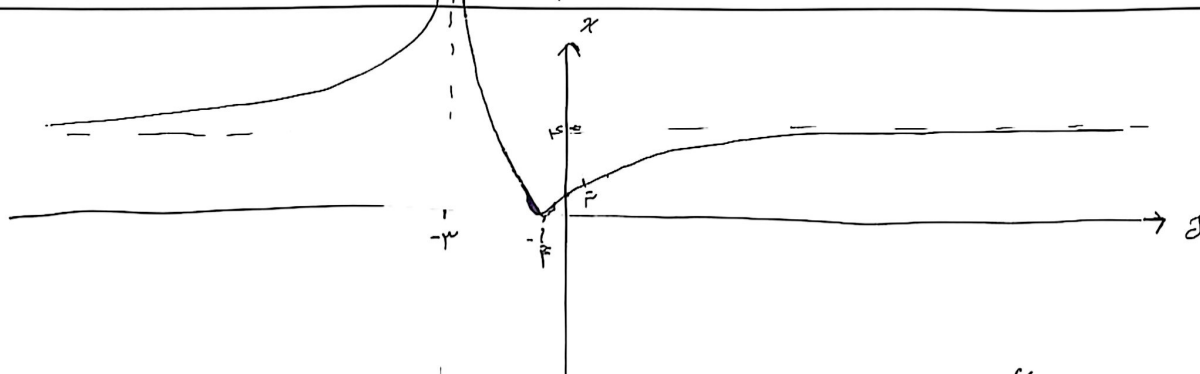
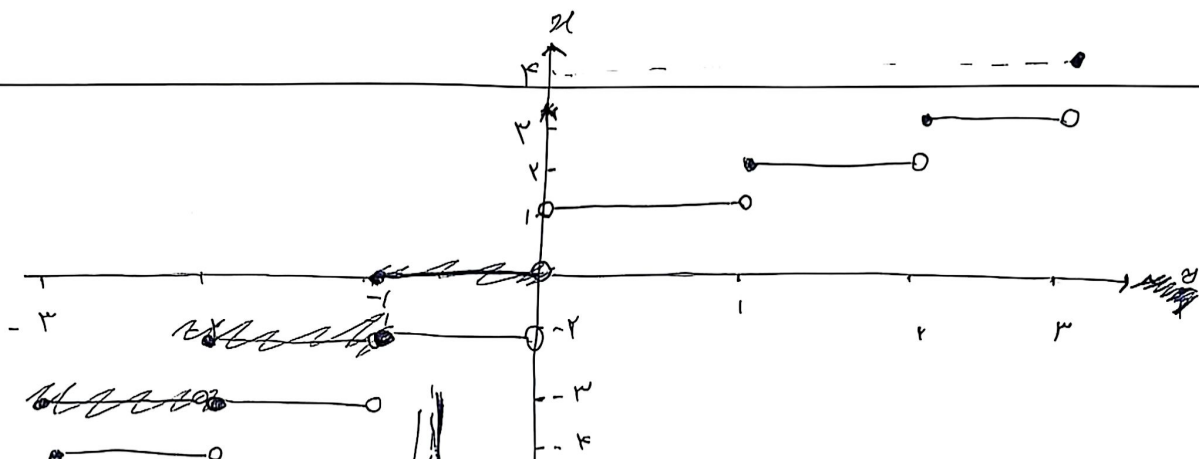


الف) $1 \leq \sin^2 x \leq 1 \rightarrow R_f = [-1, 1]$

ب) $-1 \leq \cos^2 x \leq 1 \rightarrow R_g = [-1, 1]$



الف) $g(x) = \pm \sqrt{x+2} \rightarrow R_g = [x+2, +\infty)$
 $x \leq \frac{1}{2} + \infty$

ب) $x_5 = 1 \rightarrow R_g = [0, 4]$



$$D_f = \{1, 2, \dots, 9\} \rightarrow R_f = \frac{19}{r}, \frac{18}{r}, \frac{17}{r}, \frac{16}{r}, \frac{15}{r}, \frac{14}{r}, \frac{13}{r}, \frac{12}{r}, \frac{11}{r}$$

$$f(n) = \frac{r_0 - n}{r} \quad \sum_{i=1}^9 \frac{r_0 - i}{r} = 90 + (9 \times \frac{1}{r}) \times (-\frac{1}{r}) = 90$$

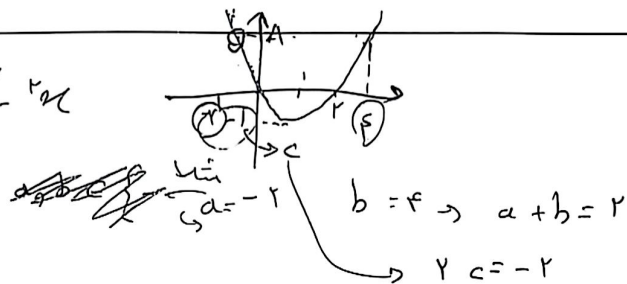
9

$$D_f = [r, +\infty) \rightarrow a = 0$$

$$\sqrt{rb+c} = 1 \quad \begin{cases} b=1 \\ c=-r \end{cases} \rightarrow g(n) = \sqrt{n^r + r} \rightarrow R_g = [r, +\infty)$$

r

$$f(n) = \frac{n(n+r)(n-r)}{n+r} = n^r - r^2 n$$



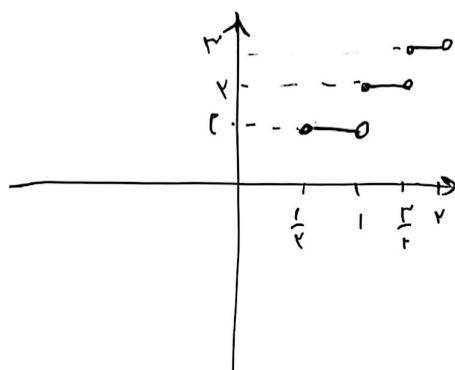
$$\rightarrow f\left(\frac{a+b}{rc}\right) = f(-1) = \textcircled{r}$$

1

$$g = \sqrt[n]{(n-r)^r} = \sqrt[n]{\underbrace{n^r}_{a} - \underbrace{r^2 n^r}_{b} + \underbrace{r^2 n - 1}_{c}} = n - r$$

$$R_g = [-r-1, r-1] = [-1, 1]$$

9



$$[n] \rightarrow k$$

$$\left[n + \frac{1}{r}\right] \rightarrow k - \frac{1}{r}$$

$$\rightarrow \textcircled{0}, \textcircled{1}, \textcircled{r}$$

10