

① $x=1$ $f(1) = 1+m+n+mn$ ② $x=2 \rightarrow 1+2+1+n+2m = 4+2-n+2m$
 ③ $x=-1$ $f(-1) = 1+m-n+mn$ ④ $x=3 \xrightarrow{n=2} 1+2m = 1+m+2+2m$
 ⑤ $x=0$ $f(0) = 2+mn$ $m = -10$
 $g(x) = \{(x, m), (n, p+1), (p+2, -1), (-9, p+k)\}$
 $m = p+1 \rightarrow p = -11$
 $-1 = p+k \rightarrow k = 10$
 $m+n+p+k = -10 + (-11) + 10 = -11$

الف) $y = \sqrt{\frac{x-2}{x^2-2x^2-1}}$ $\Rightarrow y = \frac{2x^2+1}{x^2-2x^2-1}$
 $\frac{x-2}{x^2-2x^2-1} \geq 0$ ① $\Rightarrow D_y = (-2, +\infty) - \{2\}$
 $x^2-2x^2-1 \neq 0$ ②

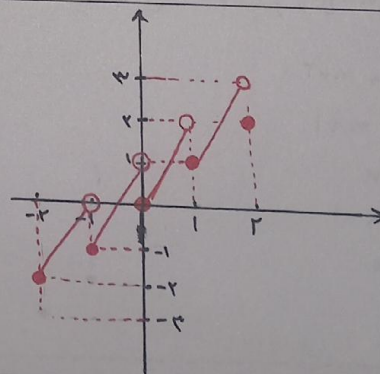
	-2	2
y	-	+

الف) $F(x) = \frac{\sqrt{x(x^2-1)}}{\sqrt{|x|+x}}$ $\Rightarrow y = \frac{\sqrt{|x-1|-x^2}}{|x|-1}$
 ① $x(x^2-1) \geq 0 \rightarrow \frac{1}{-x^2+x-1} \rightarrow [-1, 0] \cup [1, +\infty)$
 ② $|x|+x > 0 \rightarrow x > -|x| \rightarrow x > 0$
 ③ $|x|-1 \neq 0 \rightarrow |x| \neq 1 \rightarrow x \neq \pm 1$
 $\Rightarrow D_F = [1, +\infty) - \{1\}$

$y = \frac{1}{|x-1|-1} - K$ $|x-1|-1 \neq K$
 $|x-1|-1 = K \xrightarrow{|x-1|=t} |t-1| = K \rightarrow \frac{t-1}{t} = \pm K \rightarrow x = 2+t$
 $t = 1+K$
 $t = 1-K$
 if $K=0 \rightarrow t=1 \rightarrow x=2, 1$
 if $K=1 \rightarrow t=0 \rightarrow x=1$
 $t=2 \rightarrow x=3$
 $\sqrt{0} \rightarrow K=1$

$y = 2x - [x] \quad [-2, 2]$

$-2 \leq x < -1 \rightarrow 2x - (-2) = 2x+2$
 $-1 \leq x < 0 \rightarrow 2x+1$
 $0 \leq x < 1 \rightarrow 2x$
 $1 \leq x < 2 \rightarrow 2x-1$
 $2 \leq x \rightarrow \frac{2x-2}{2}$



$$F(x) = \frac{x^r - \varepsilon x + r}{x+a} + b \quad \text{جواب} \quad a-b?$$

$$x=1 \rightarrow \frac{1 - \varepsilon + r}{1+a} + b = 1 \rightarrow 0+b=1 \rightarrow b=1$$

$$-r - (1) = -r$$

$$x=0 \rightarrow \frac{r}{a} + b = 0 \xrightarrow{b=1} \frac{r}{a} = -1 \rightarrow a = -r$$

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$$F(x) = \begin{cases} \frac{x^r + r x^r - x - r}{x^r - 1} & ; x \neq \pm 1 \\ \frac{a x + r}{x+b} & ; x = \pm 1 \end{cases}$$

$$g(x) = \frac{x+c}{x+r}$$

$$b+c$$

$$\frac{1}{r} + \frac{\varepsilon}{r} = \frac{2}{r} = 2/r$$

$$f(0) = g(0) \rightarrow 0 + c = \frac{-r}{-1} \rightarrow c = r$$

$$F(-1) = g(-1) \rightarrow \frac{-a+r}{-1+b} = -1+r=1 \rightarrow -a+r = -1+b$$

$$\begin{cases} b+a=r \\ r b - a = -1 \end{cases} \rightarrow \begin{cases} b=r \\ a=\frac{1}{r} \end{cases}$$

$$F(1) = g(1) \rightarrow \frac{a+r}{1+b} = r \rightarrow r + r b = a + r$$

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$$F(x) = \sqrt{x-a} \quad g(x) = \sqrt{b-x} + r$$

$$D_F = x \leq a \quad D_g = b \geq x$$

$$\text{if } b = \varepsilon n \xrightarrow{n \geq 1} b \geq \varepsilon$$

$$\text{if } r a \geq \varepsilon n \xrightarrow{n \geq 1} r a \geq \varepsilon$$

$$r \sqrt{x-a} - \sqrt{b-x} + r \rightarrow 0 + r - r - 0 - r = -r$$

$$rK \geq -r$$

$$r a - \frac{b}{r} - K \geq \varepsilon - \frac{\varepsilon}{r} - (-1) = r$$

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$$F(x) = \sqrt{m-x} + n \quad g(x) = \sqrt{x+r} \quad D_{F \times g} = [-1, \sqrt{r}] \quad F-g(x) = 4\sqrt{r} \quad m+n?$$

$$D_F = [-1, \sqrt{r}]$$

$$\sqrt{r} + \varepsilon \sqrt{r}$$

$$D_g = [-1, \sqrt{r}]$$

$$D_F = (-\infty, \sqrt{r}] \xrightarrow{\text{راديكال اصغر}} \sqrt{m-V} = 0 \rightarrow m = V \rightarrow F(x) = \sqrt{V-x} + n$$

$$F-g(x) = \sqrt{V-x} + n - \sqrt{x+r} \xrightarrow{n \geq r} r+n - r = n \rightarrow n \geq \frac{1-\sqrt{r}}{r} = \varepsilon \sqrt{r}$$

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$$y = (-1)^r (n - [n]) = \frac{1}{r} \quad [-r, r]$$

$$\frac{1}{r}$$

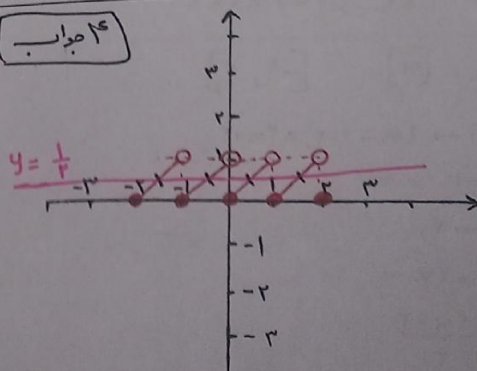
$$-r \leq x \leq -1 \rightarrow n+r$$

$$-1 \leq x < 0 \rightarrow n+1$$

$$0 \leq x < 1 \rightarrow n$$

$$1 \leq x < 2 \rightarrow n-1$$

$$r=x \rightarrow 0$$



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