

عرفان حقیقیہ (ماز دھم سے) B
الف) $r \sin^r \left(n + \frac{\pi}{r} \right) = 1$ -)

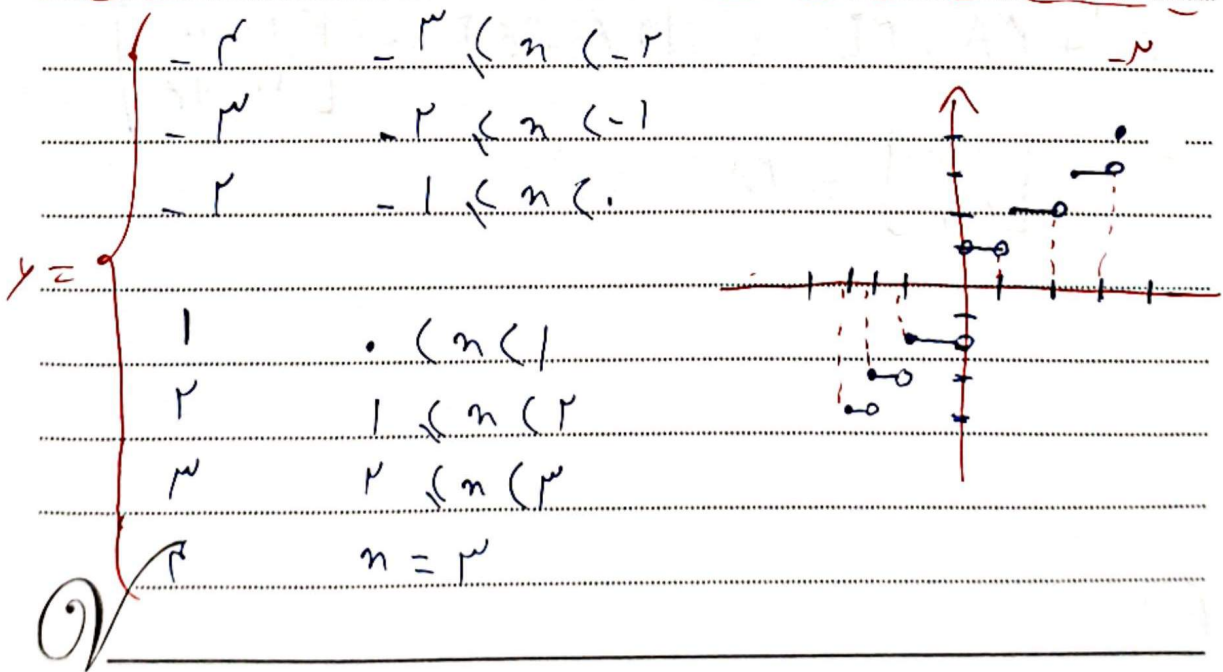
$$\Rightarrow \sin^r \begin{cases} \max = 1 \Rightarrow r(1) - 1 = 1 \\ \min = -1 \Rightarrow r(-1) - 1 = -1 \end{cases}$$

$$R_y = [-1, 1]$$

$$-) r \cos^r n - r \Rightarrow \cos \begin{cases} \max = 1 \\ \min = -1 \end{cases}$$

$$r(1) - r = -1 \quad | \quad r(-1) - r = -1$$

$$R_y = [-1, -1]$$



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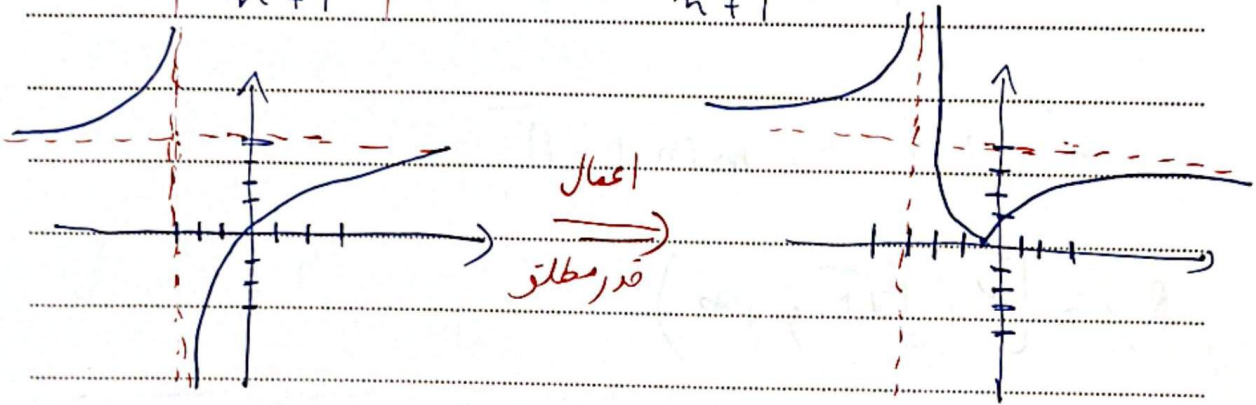
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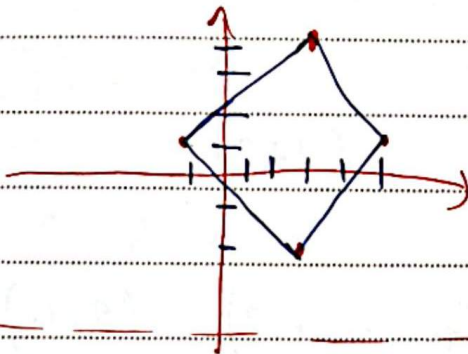
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$$y = \frac{(n+1)}{n+3} \Rightarrow y = \frac{(n+1)}{n+3}$$



$$y = \begin{cases} -n+3 & n \geq 2, y \geq 1 \\ n+3 & n < 2, y \geq 1 \\ -n & n < 2, y < 1 \\ n-3 & n \geq 2, y < 1 \end{cases}$$



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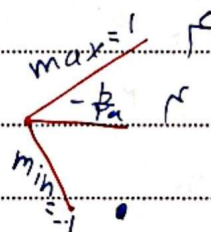
$$(الف) \quad y = n + \frac{1}{n} + r \sqrt{n + \frac{1}{n}} \Rightarrow \sqrt{n + \frac{1}{n}} = t$$

$$\Rightarrow t^2 + r + t \Rightarrow \min t = \sqrt{r}$$

$$R_y = [r + r\sqrt{r}, +\infty)$$

$$\therefore y = (r \sin n)(1 + \sin n)$$

$$\Rightarrow -\sin^2 n + r \sin n + r \Rightarrow$$



$$R_y = [-r, r]$$

$$f(1) + f(2) + f(3) \dots + f(9)$$

$$\text{مجموع} = -\frac{1}{3} (1 + 2 + 3 + \dots + 9) + (9 \times 1)$$

$$\Rightarrow 6$$

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۷- تابع زیر، اذکار یک خط باشد $a = 0$

$$\begin{cases} 1) b+c=0 \\ 2) b+c=1 \end{cases} \Rightarrow b=1 \text{ و } c=-1$$

$$\sqrt{n^2 + 1} \Rightarrow R_y = [1, +\infty)$$

$$\frac{n(n-1)(n-2)}{n+1} \stackrel{n \neq -1}{=} n^2 - 1 \Rightarrow R_y = [-1, +\infty) \quad \text{۸}$$

$$(n+1)(n-1) = 1 \quad \begin{cases} n \neq -1 \\ n \neq 1 \end{cases}$$

$$a = -1 \quad b = 1 \quad c = -1$$

$$f(-1) = 3$$

۹- چون تابع خطی است پس زیر اذکار یک خط باشد

$$\sqrt{(n-1)^3} \Rightarrow a = -1 \text{ و } b = 1$$

$$n-1 \quad \begin{cases} n=1 \Rightarrow 1 \\ n=-1 \Rightarrow -1 \end{cases} \quad R_y = [-1, 1]$$

$$\sqrt{n-1} \quad \begin{cases} n=1 \Rightarrow 1 \\ n=-1 \Rightarrow -1 \end{cases}$$

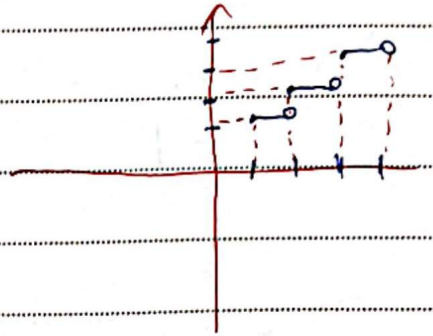
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$$y = \begin{cases} 1 & \frac{1}{p} \leq n < 1 \\ r & 1 \leq n < \frac{r}{p} \\ \mu & \frac{\mu}{r} \leq n < r \end{cases}$$



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