

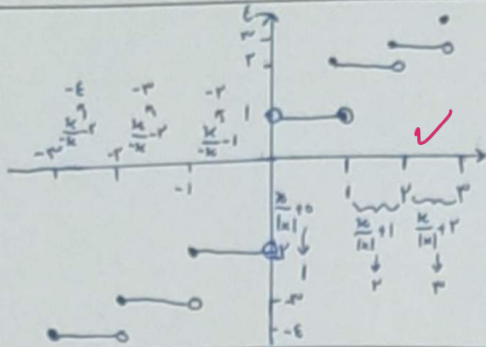
نام و نام خانوادگی احمد بن محمد پاسخنامه تشریحی تکلیف شماره ٤ کلاس ریاضیات

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

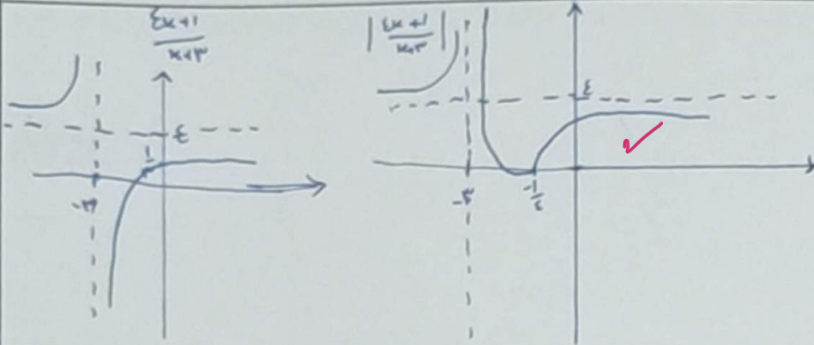
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ب) $-1 \leq \cos^2 x \leq 1 \rightarrow -3 \leq 3\cos^2 x \leq 3 \rightarrow -5 \leq 3\cos^2 x - 4 \leq -1 \rightarrow R = [-5, -1]$ ✓

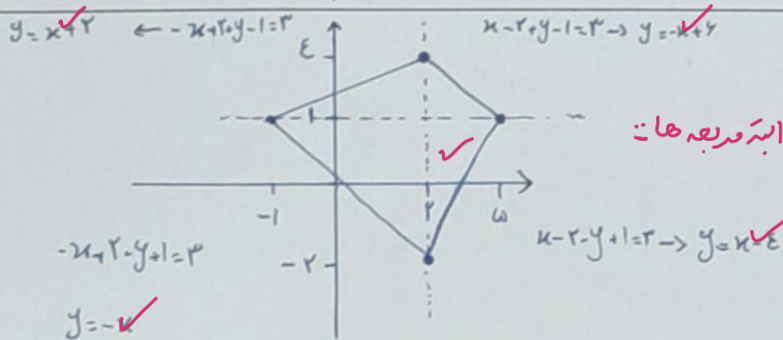
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$x + \frac{1}{x} \geq 2, x + \frac{1}{x} \leq -2 \rightarrow$ الف) $\sqrt{x + \frac{1}{x}} = t \rightarrow t \geq 0 \rightarrow t^2 + \frac{1}{t^2} = 2 \rightarrow t^4 - 2t^2 + 1 = 0 \rightarrow (t^2 - 1)^2 = 0 \rightarrow t^2 = 1 \rightarrow t = 1 \rightarrow x + \frac{1}{x} = 2 \rightarrow x^2 - 2x + 1 = 0 \rightarrow (x-1)^2 = 0 \rightarrow x = 1$ ✓

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

$$D = \{1, 2, 3, \dots, 9\} \rightarrow 9(10) - \frac{1}{9}(1+2+3+\dots+9) = 90 - \frac{45}{9} = 90 - 5 = 85$$

مجموعه اعداد 1 تا 9 $\frac{9(10)}{2} = 45$

(2)

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مجموعه اعداد صحیح $\rightarrow \alpha = 0$ $\rightarrow \begin{cases} rb+c=1 \\ rb+c=0 \end{cases} \rightarrow \begin{cases} b=1 \\ c=0 \end{cases}$ $\rightarrow \sqrt{2r+\varepsilon} \rightarrow \frac{-b}{ra} = 0 \rightarrow \left| \frac{0}{\varepsilon} \right| \rightarrow \sqrt{\varepsilon, 100} = [10, 100]$

(2)

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$k+r \neq 0 \rightarrow k \neq -r \rightarrow \alpha = -r \rightarrow \frac{k(k^2-\varepsilon)}{k+r} = \frac{k(k+r)(k-r)}{k+r} = k(k-r) \rightarrow k^2 - rk = 0 \rightarrow (k-r)^2 = 1 \rightarrow r = -1$

$f\left(\frac{-r+r}{-r}\right) = f\left(\frac{0}{-r}\right) = \frac{0 - \varepsilon(0)}{f} = \frac{-\varepsilon(0)}{f} = \frac{0}{f} = 0$

$k^2 - rk = 0$
 $\downarrow$
 $k^2 - rk - 1 = 0$
 $(k+r)(k-\varepsilon) = 0$
 $\downarrow$
 $b = \varepsilon$

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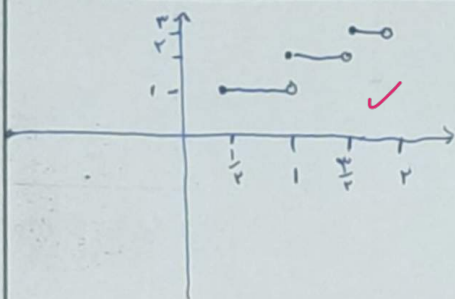
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$\rightarrow \sqrt{(k-r)^2} = k-r \rightarrow k^2 - 5k^2 + 12k - 1 \rightarrow \alpha = -1, b = +12 \rightarrow [-1, 12]$

(2)

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



leibniz

(2)

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