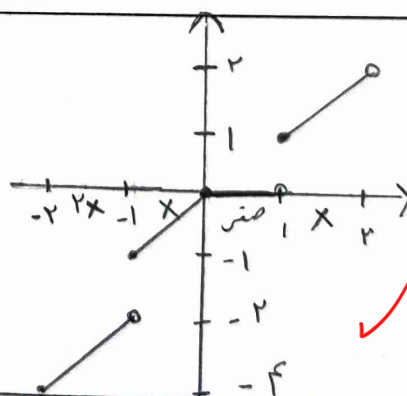
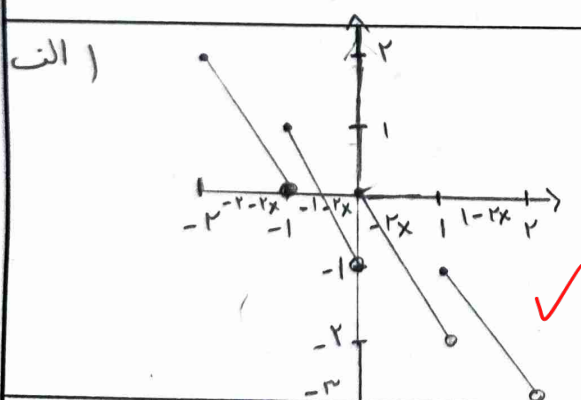
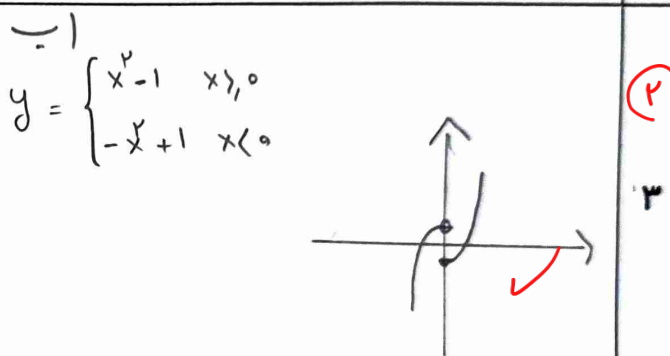
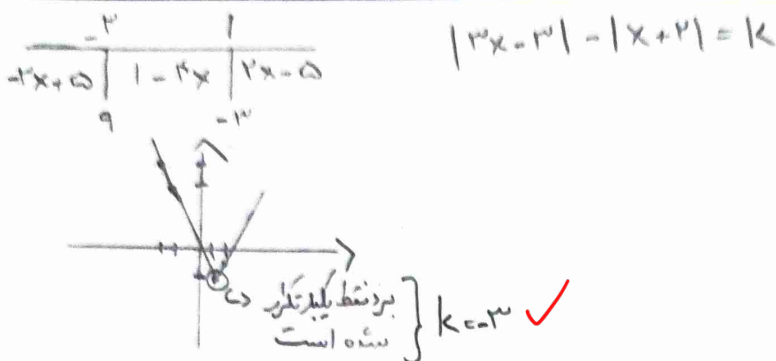
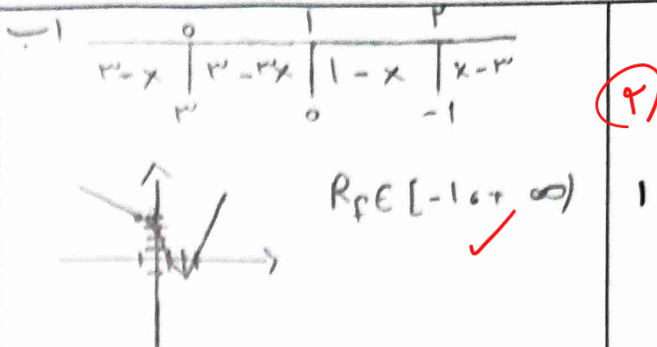
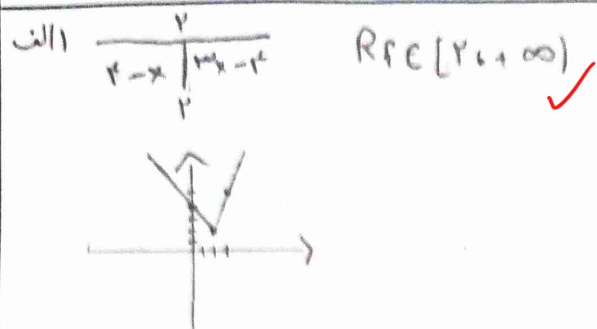


۱۹, ۲۵

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره: کلاس: A



الف) $y = x - [x] \rightarrow R_f \in [0, 1)$ ✓

ب) $y = f(x) - f([x]) = f(x - [x]) \rightarrow R_f \in [0, 1)$ ✓

ج) $y = \frac{x}{5} - [\frac{x}{5}] = \frac{x}{5} - [\frac{x}{5}] \rightarrow R_f \in [0, \frac{1}{5})$ ✓

د) $y = [2x] - 2x \rightarrow R_f \in (-1, 0]$ ✓

الف) $-\sqrt{r+9} \leq r \sin x + r \cos x \leq \sqrt{r+9} \rightarrow R_f \in [-\sqrt{r+9}, \sqrt{r+9}] \checkmark$ ب) $-\sqrt{r+9} \leq r \sin x - r \cos x \leq \sqrt{r+9} \rightarrow R_f \in [-\omega, \omega] \checkmark$ ج) $-\sqrt{r+9} \leq r \sin x + \omega \cos x \leq \sqrt{r+9} \rightarrow [r \sin x + \omega \cos x] \rightarrow R_f \in \{ \pm \omega, \pm r, \pm r, \pm r \}$ $4, \pm 1, \omega \}$ د) $-\sqrt{r+1} \leq -r \sin x + \cos x \leq \sqrt{r+1} \rightarrow \sqrt{\cos x - r \sin x} \rightarrow R_f \in [0, \sqrt{\omega}] \checkmark$	1, 1, 1, 1
الف) $y = \sin^r x + r \sin x + r$ $\begin{matrix} 1 \rightarrow 4 \\ -1 \rightarrow 0 \\ -\frac{1}{r} \rightarrow -\frac{1}{r} \end{matrix}$ $\rightarrow R_f \in [0, 4] \checkmark$	ب) $y = r \sin^r x + r \sin x + r$ $\begin{matrix} 1 \rightarrow v \\ -1 \rightarrow 1 \\ -\frac{1}{r} \rightarrow \frac{1}{\lambda} \end{matrix}$ $\rightarrow R_f \in [\frac{1}{\lambda}, v] \checkmark$
الف) $y = 1 + r \cos^r x$ $1 \leq \cos^r x \leq \omega \rightarrow r \leq r \cos^r x \leq \omega$ $\rightarrow r \leq r \cos^r x + 1 \leq \omega + 1$ $\rightarrow R_f \in [1, \omega] \checkmark$	ب) $y = \frac{r \cot x}{1 + \cot^r x} = \frac{r \frac{\cos x}{\sin x}}{\frac{\sin^r x + \cos^r x}{\sin^r x}}$ $= r \sin x \cos x = \sin^2 x$ $\rightarrow 1 \geq \sin^2 x \geq -1 \rightarrow R_f \in [-1, 1] \checkmark$
الف) $y = \sin^r x + \cos^r x = (\sin^r x)^r + (\cos^r x)^r$ $\rightarrow r^{1-r} \{ (\sin^r x)^r + (\cos^r x)^r \} \leq 1$ $\rightarrow R_f \in [\frac{1}{r}, 1] \checkmark$	ب) $y = \sin^r x + \cos^r x = (\sin^r x)^r + (\cos^r x)^r$ $\rightarrow r^{1-r} \{ (\sin^r x)^r + (\cos^r x)^r \} \leq 1$ $\rightarrow [\sin^r x + \cos^r x] \rightarrow R_f \in \{0, 1\} \checkmark$
الف) $y = \frac{rx^r + vx - r}{x+r} = \frac{(rx-1)(x+r)}{x+r}$ $\rightarrow y = rx - 1, x \neq -r \Rightarrow R_f \in \mathbb{R} - \{-9\} \checkmark$	ب) $y = \frac{x^r - 1}{x-1} = \frac{(x-1)(x^r + x + 1)}{x-1}$ $\rightarrow y = x^r + x + 1, x \neq 1 \rightarrow y_{\min} = \frac{r}{r}$ $x^r + x + 1 = r \rightarrow x^r + x - r = 0$ $\rightarrow x = 1, -r \Rightarrow R = r \checkmark$ $\rightarrow R_f \in [\frac{r}{r}, +\infty) \checkmark$