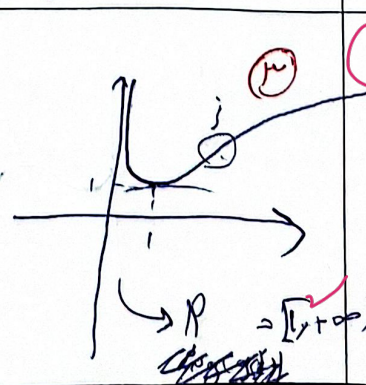
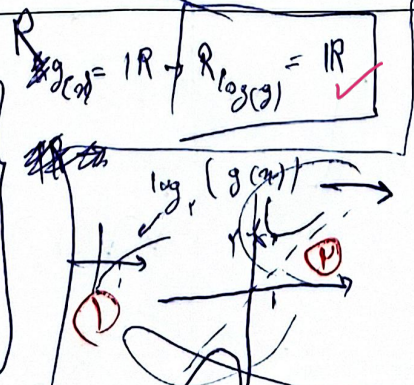
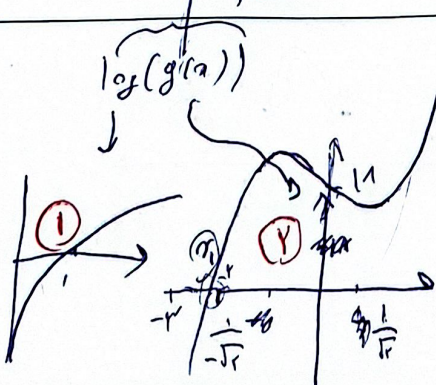
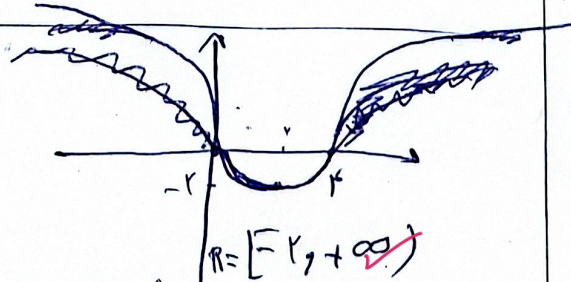
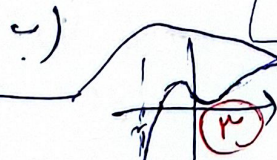
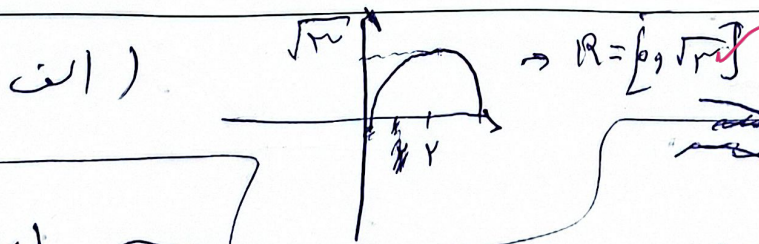
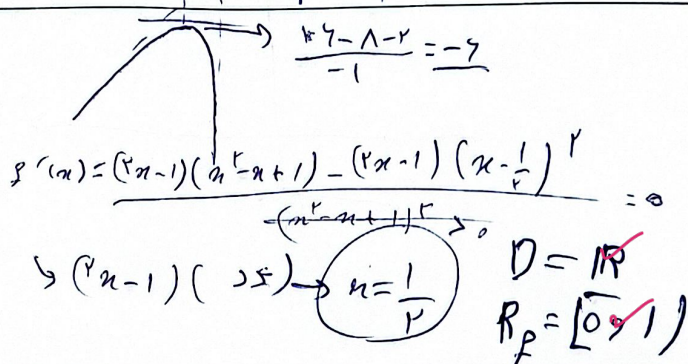
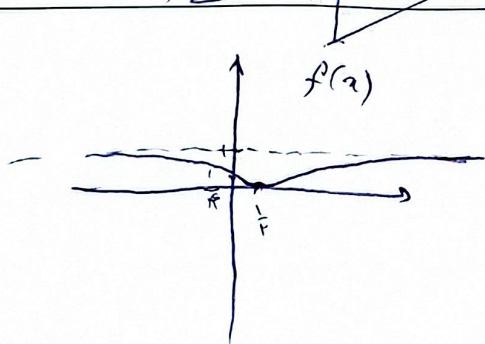
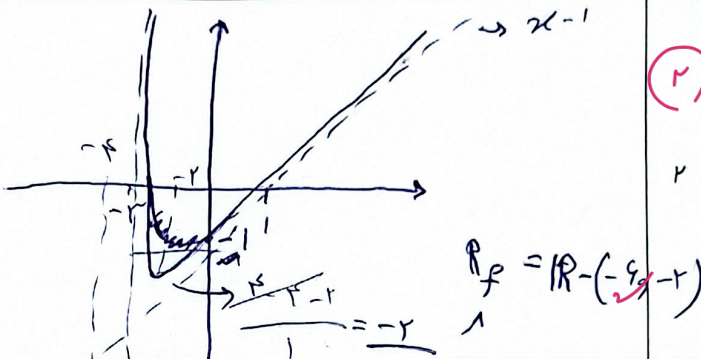
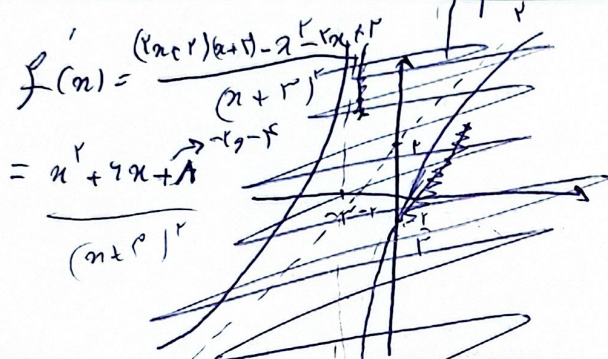
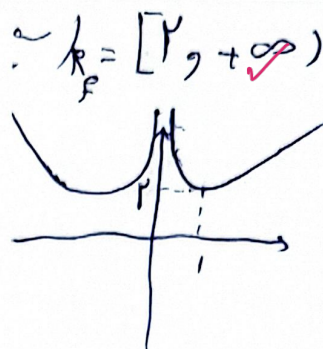
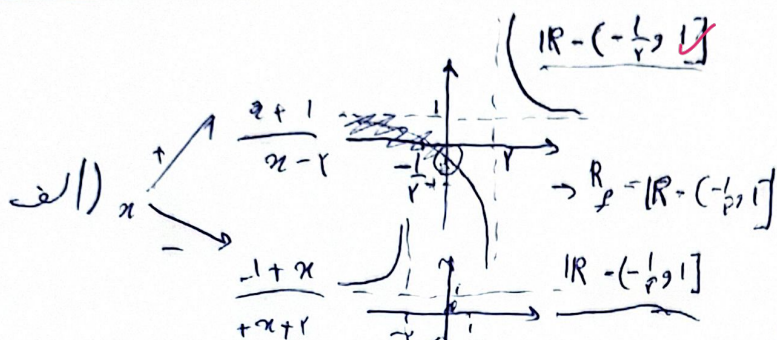
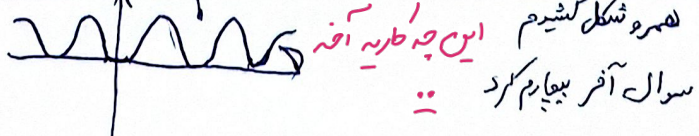
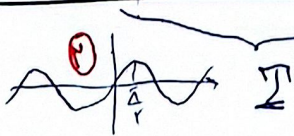
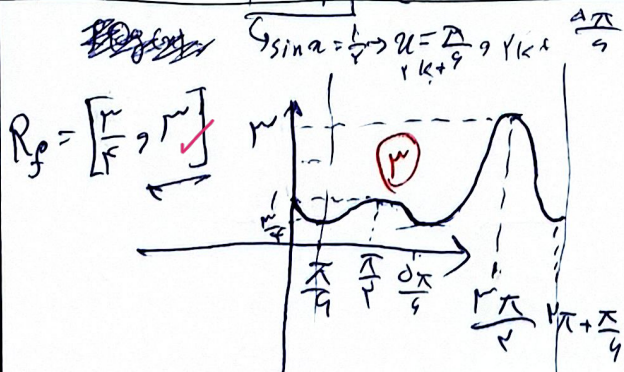
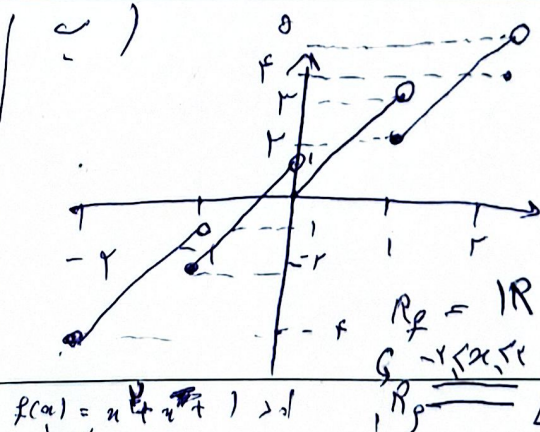
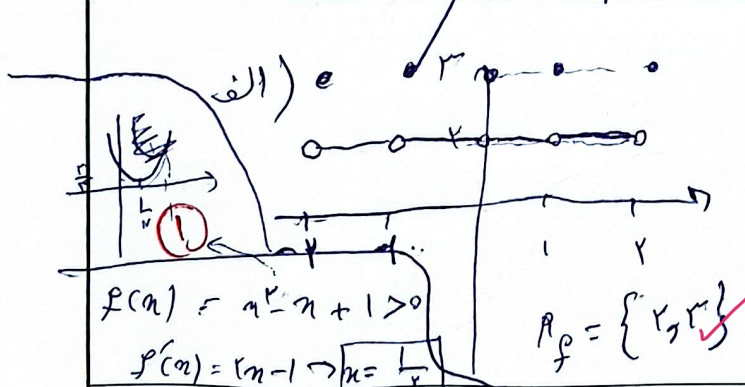
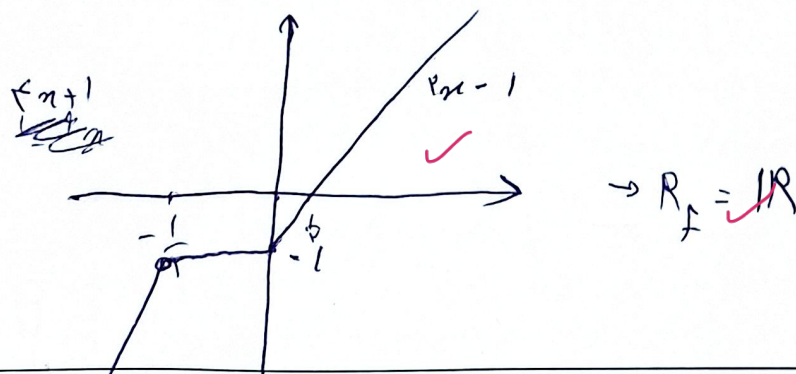
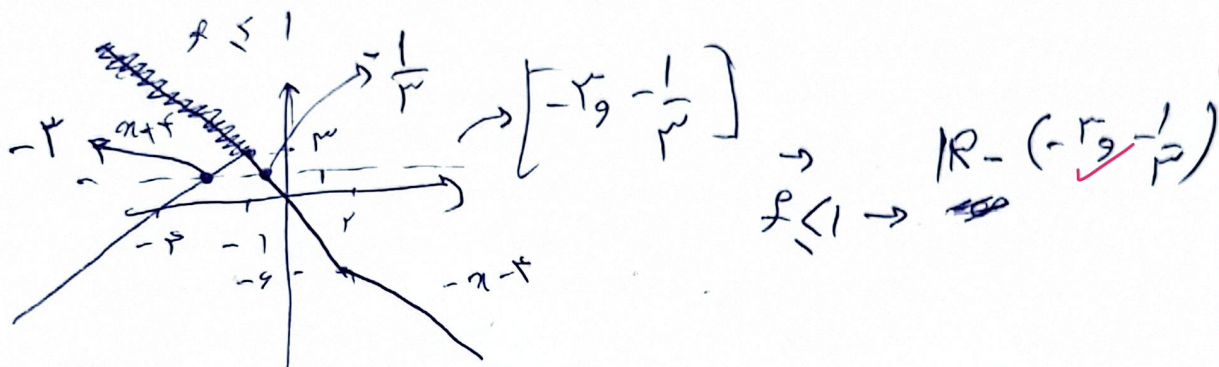
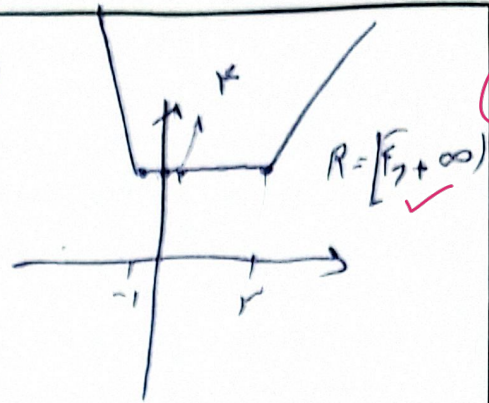
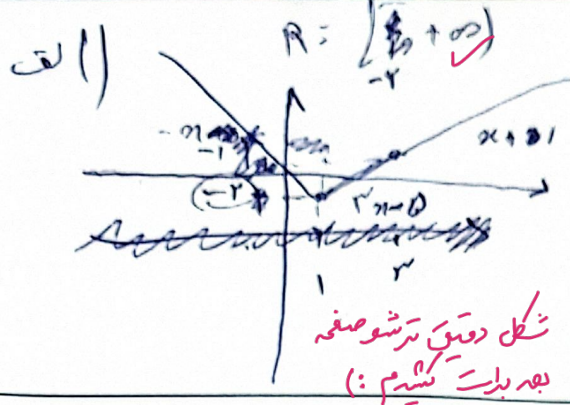


نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ۵ کلاس نام و نام خانوادگی
 نام و نام خانوادگی
 نام و نام خانوادگی





همه شکل کشیم
سوال آخر بیایم کرد

الف $\square = |n| \rightarrow \begin{cases} |n| = 0 \rightarrow y = \frac{-1}{2} \\ |n| = +\infty \rightarrow y = 1 \end{cases} \xrightarrow[\text{محدوده میانه}]{\text{محدوده میانه}} R_y = (-\infty, \frac{-1}{2}] \cup (1, +\infty)$ - ۱

ب $y = |n| + \frac{1}{|n|} \xrightarrow[\alpha + \frac{1}{\alpha} \geq 2]{\alpha > 0} |n| + \frac{1}{|n|} \geq 2 \rightarrow R_y = [2, +\infty)$

طرفین وسطین $\rightarrow y n + 3y = n^2 + 2n - 2 \rightarrow n^2 + (2-y)n - 2 - 3y = 0$ - ۲

$$n = \frac{y-2 \pm \sqrt{(2-y)^2 - 4(-2-3y)}}{2} = \frac{y-2 \pm \sqrt{y^2 + 8y + 12}}{2}$$

$\Delta \geq 0 \rightarrow y^2 + 8y + 12 \geq 0 \rightarrow \frac{-4}{+} \frac{-2}{-} \rightarrow R_y = (-\infty, -4] \cup [-2, +\infty)$

$$f(n) = \frac{(n - \frac{1}{r})^2}{(n - \frac{1}{r})^2 + \frac{r}{4}}$$

- ۳. مخرج کسر همواره مثبت است پس دامنه IR است

طرفین وسطین $\rightarrow y n^2 - y n + y = n^2 - n + \frac{1}{4} \rightarrow (y-1)n^2 - (y-1)n + y - \frac{1}{4} = 0$

$$n = \frac{y-1 \pm \sqrt{(y-1)^2 - 4(y-1)(y-\frac{1}{4})}}{2(y-1)} \rightarrow \Delta \geq 0 \rightarrow (y-1)(y-1-4y+1) \geq 0$$

$\frac{0}{-} \frac{1}{+} \Rightarrow y = [0, 1]$

غریب n نباید صفر شود یعنی $y \neq 1$ است

و تابع در انزای هیچ مقداری برابر یک نمیشد پس برد برابر است با: $R_y = [0, 1)$

می‌توانست از روش مربع هم استفاده کنی $f(n) = \frac{\square^2}{\square^2 + \frac{r}{4}}$

$$\text{الف) } \max_x \left| \begin{array}{l} \frac{-b}{2a} = 2 \\ y = 3 \end{array} \right. \Rightarrow R_y = \sqrt{(-\infty, 3]} = [0, \sqrt{3}]$$

-۳

$$\text{ب) } \min \left| \begin{array}{l} \frac{-b}{2a} = 2 \\ y = -1 \end{array} \right. \Rightarrow R_y = \sqrt{[-1, +\infty)} = [-1, +\infty)$$

-۵

الف) برد توابع چندجمله‌ای از مرتبه فرد برابر $\mathbb{R}$ می‌باشد:

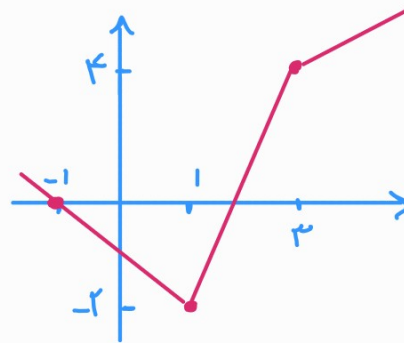
$$R_y = \text{deg}(-\infty, +\infty) = \mathbb{R}$$

$$\text{ب) } \frac{x^2+1}{x} = x + \frac{1}{x} \xrightarrow{\begin{array}{l} a + \frac{1}{a} \geq 2 \\ a + \frac{1}{a} \leq -2 \end{array}} R = (-\infty, -2] \cup [2, +\infty)$$

$$\xrightarrow{\text{deg}_x} R_y = [1, +\infty)$$

-۶

$$\text{الف) } y = \begin{cases} x+1 & x \geq 3 \\ 3x-5 & 1 \leq x \leq 3 \\ -x-1 & x \leq 1 \end{cases}$$



$$\Rightarrow R_y = [-2, +\infty)$$