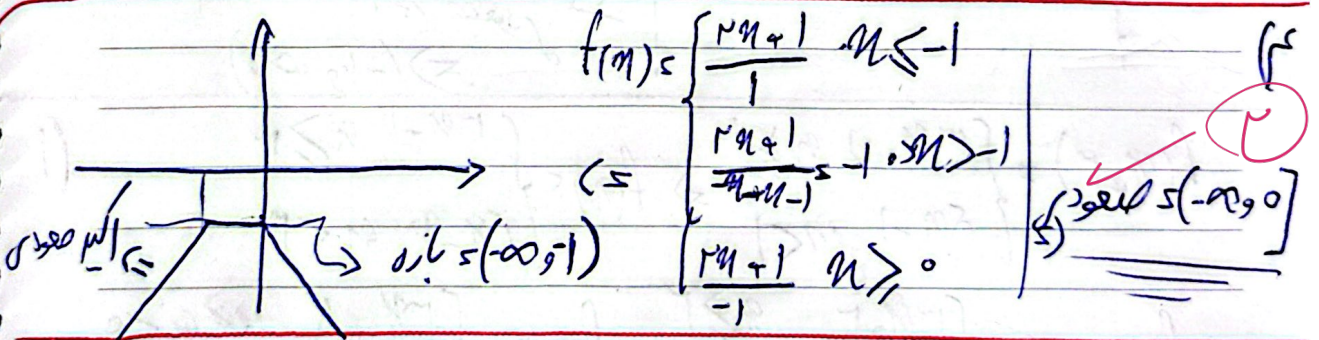
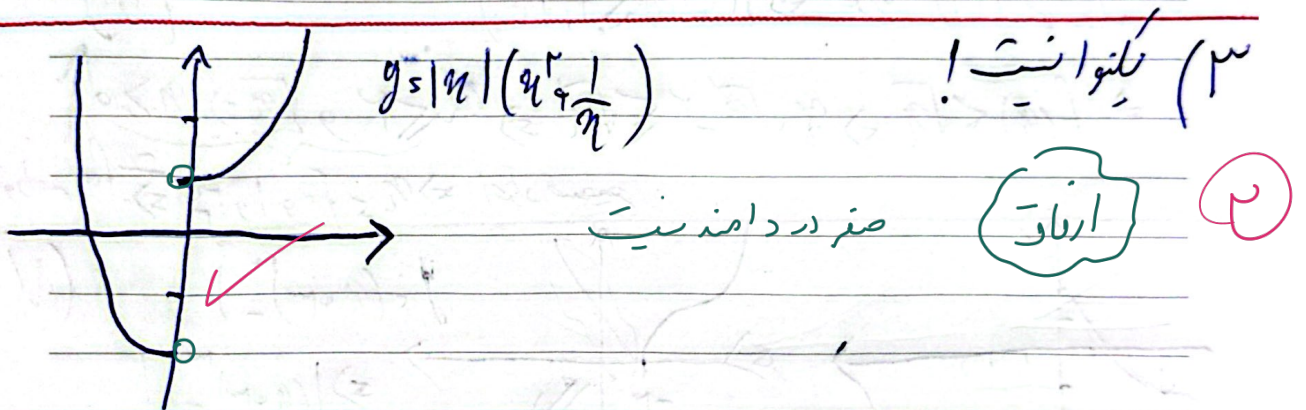
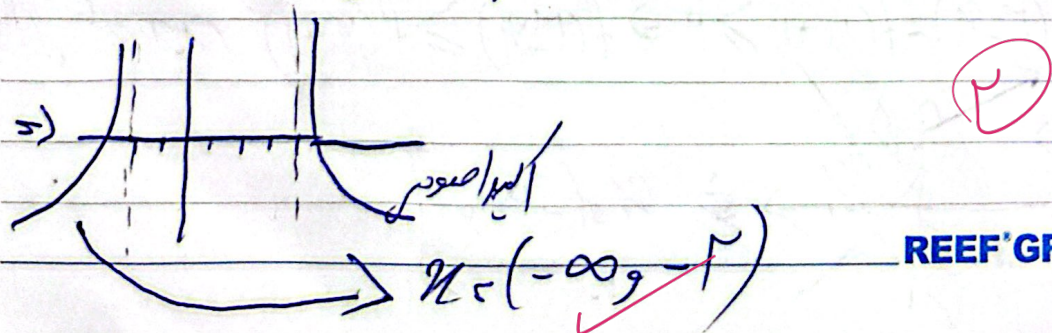


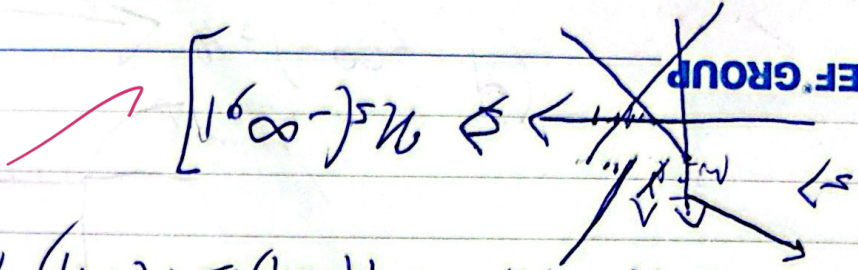
نام خانوادگی خود را بنویسید و شماره امتحان خود را صفر لحاظ فرستاد

(۲) چون نمودار $f(x)$ صعودی است $\Rightarrow f(f(x)) < f(x^3) \Rightarrow f(x^3 + x) < f(x^3)$
 $\Rightarrow x^3 + x < x^3 \Rightarrow x < 0$



(۵) $y = \int_0^x (x^2 - 2x) dx = \frac{x^3}{3} - x^2$

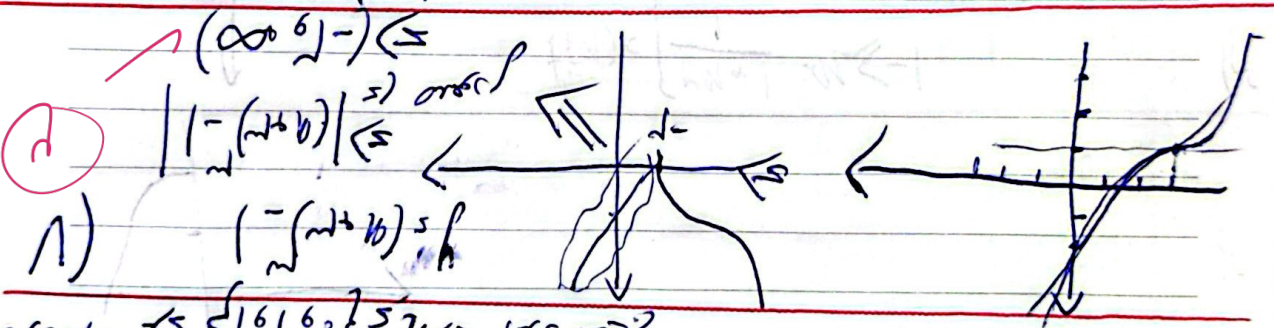




$$f(a) \leq f(b) \leq f(c) \leq f(d) \leq f(e) \Rightarrow f(a) \leq f(b) \leq f(c) \leq f(d) \leq f(e)$$

$$\begin{cases} a < b & f(a) < f(b) \\ b < c & f(b) < f(c) \\ c < d & f(c) < f(d) \\ d < e & f(d) < f(e) \end{cases} \Rightarrow f(a) < f(b) < f(c) < f(d) < f(e)$$

$$1) \begin{cases} a < b & f(a) < f(b) \\ b < c & f(b) < f(c) \\ c < d & f(c) < f(d) \\ d < e & f(d) < f(e) \end{cases} \Rightarrow f(a) < f(b) < f(c) < f(d) < f(e)$$



$$f(a) \leq f(b) \leq f(c) \leq f(d) \leq f(e) \Rightarrow f(a) \leq f(b) \leq f(c) \leq f(d) \leq f(e)$$

$$f(a) \leq f(b) \leq f(c) \leq f(d) \leq f(e) \Rightarrow f(a) \leq f(b) \leq f(c) \leq f(d) \leq f(e)$$

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$$0 < \cos^2 \alpha \leq 1 \Rightarrow -1 \leq 9 \cos^2 \alpha - 1 \leq 1 \sqrt{1} - 1 \leq 9 \cos^2 \alpha - 1 \leq 1 \quad (9)$$

$$-1 \leq 1 - 9 \cos^2 \alpha \leq 1 \Rightarrow -2 \leq 1 - 9 \cos^2 \alpha \leq 1$$

$$\Rightarrow \min \leq \frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} \leq \frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} \leq \frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} \left[\begin{matrix} a, b \\ \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} \end{matrix} \right]$$

$$\Rightarrow \max \leq \frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} \leq \frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} \leq \frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} \Rightarrow b - a \quad \checkmark$$

$$f(n) \leq n - [n] - 1 \Rightarrow \min \leq 1 \leq f(n) \leq 1 \quad (10)$$

$$\Rightarrow g \circ f \leq g(f(n)) \leq \frac{f(n) - f(n)}{1} \leq \frac{1}{1} \leq \frac{1}{1} \leq \frac{1}{1} \leq \frac{1}{1} \quad \checkmark$$

$$\Rightarrow \frac{1}{1} \leq \frac{1}{1} \leq \frac{1}{1} \leq \frac{1}{1} \leq \frac{1}{1} \leq \frac{1}{1}$$

$$\Rightarrow R f \leq \left(-\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}} \right) \quad \checkmark$$