

یازدهم ترم

تکلیف ۱

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$$g(u) = \{(-1, 1), (0, 2), (1, 2)\} \quad f(u) = \sqrt{1-u^2} \geq 0 \Rightarrow 1 \geq u^2 \Rightarrow -1 \leq u \leq 1$$

$$u_g = \{(-1, 2), (0, 1), (1, 2)\} \quad u_f = [-1, 1]$$

$$u_g - u_f \rightarrow D_f \cap D_g = \{(-1, 2), (0, 1), (1, 2)\}$$

$$f(u) = 2u-1 \rightarrow [3, +\infty) \quad g(u) = \frac{1}{u} u + 3 \rightarrow (-\infty, 3]$$

$$y = 2u-1 \rightarrow u = \frac{y+1}{2} \xrightarrow{u=3} 3 = \frac{y+1}{2} \rightarrow y = 5 \rightarrow [5, +\infty)$$

$$y = \frac{1}{u} u + 3 \rightarrow uy = u + 9 \rightarrow u = uy - 9 \xrightarrow{u=3} 3 = 3y - 9 \rightarrow y = 4 \rightarrow (-\infty, 4]$$

$$\cup \rightarrow (-\infty, 4] \cup [5, +\infty)$$

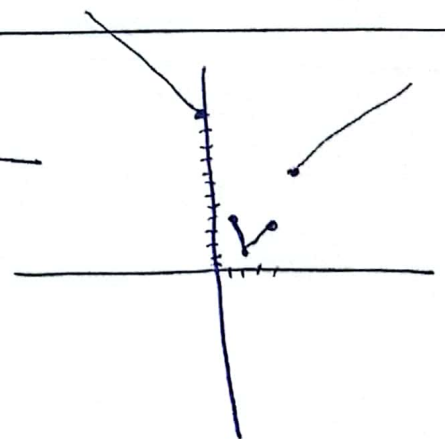
$$y = -\frac{u^2}{4} + u + 3 \rightarrow (a, b) > \frac{5}{4} \quad \Delta b - a$$

$$-\frac{b}{4a} = -\frac{1}{-1} = 1 \rightarrow -\frac{1}{4} + 1 + 3 \rightarrow \frac{11}{4} \quad (a, b) \rightarrow \left(\frac{3}{4}, \frac{11}{4}\right)$$

$$\Delta b - a \rightarrow \sqrt{\frac{11}{4} - \frac{3}{4}} \rightarrow \sqrt{\frac{8}{4}} \rightarrow (\sqrt{2})$$

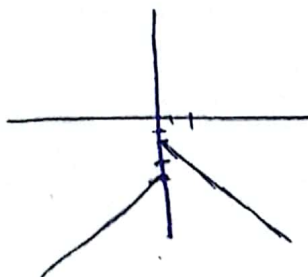
$$y = |u-1| + |u-3| + |u-5|$$

$$\begin{array}{ccccccc} & & 1 & & 3 & & 5 \\ -5u+1 & & -2u+3 & & 2u-5 & & 5u-1 \\ u \in [2, 3] \cup [1, +\infty) \rightarrow 2 \end{array}$$



$$y = |u| - 2|u+1|$$

$$\begin{array}{ccc} & -1 & \\ 3u+2 & & -u-2 \end{array}$$



$$(-\infty, -1]$$

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ms?

$$y = \frac{u^2 + du + m}{u+1}$$

R

$$\frac{u^2 + du + m}{u+1}$$

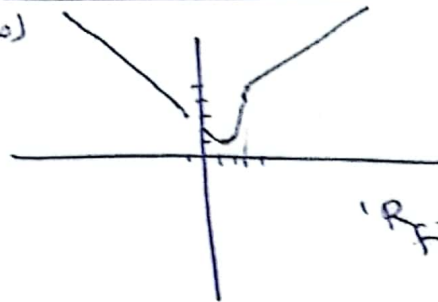
R

$$\frac{u^2 + du + m}{u+1} \rightarrow u - \varepsilon \leq 0$$

$$m \leq \varepsilon$$

$$\varepsilon \leq 1$$

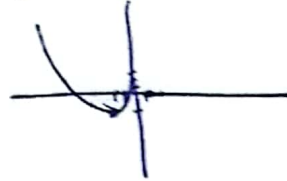
$$f(u) = \begin{cases} u+1 & ; u \geq 1 \quad [0, +\infty) \\ u^2 - 4u + 1 & ; 0 \leq u < 1 \quad [0, 1) \\ |u| + 1 & ; u < 0 \quad (-\infty, 0) \end{cases}$$



با کافیا

$$R_f = [1, +\infty)$$

$$f(u) = \begin{cases} u^2 + \varepsilon u + 1 & ; u \leq 0 \quad (-\infty, 0] \\ \varepsilon u - 1 & ; u > 0 \quad (0, +\infty) \end{cases}$$



$$\rightarrow [-1, +\infty)$$

$$y = a+1 - \sqrt{2u+1} \geq 0 \quad P_f = [0, +\infty) \quad R_f = (-\infty, 0]$$

$$2u \geq -1 \rightarrow -\frac{1}{2} \leq u \rightarrow b = -\frac{1}{2} \rightarrow a+1 = b$$

$$2x - \frac{1}{2} = -7 \quad a = \varepsilon$$

ab?

$$f(u) = 2\sqrt{u+1} + \varepsilon\sqrt{1-u}$$

$$f(u) + g(u) = 2\sqrt{1+1}\sqrt{1-u}$$

$$P_f = P_g$$

$$P_f = P_g \rightarrow g = \frac{f(u)}{2} - \frac{g(u)}{2}$$

$$P_f = R$$

$$\rightarrow 2f(u) - \varepsilon\sqrt{1+1}\sqrt{1-u} = \frac{f(u)}{2} - \frac{2\sqrt{1+1}\sqrt{1-u} - f(u)}{2} \rightarrow f(u) - \varepsilon\sqrt{1+1}\sqrt{1-u}$$