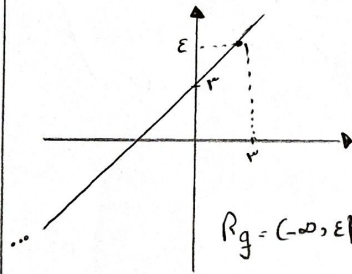


$f(x) = \sqrt{1-x^2}$
 $fg(x) - rf(x)$

$fg(-1) - rf(-1) = 1 - 0 = 1$ $fg(0) - rf(0) = 1 - 1 = 0$ $fg(1) - rf(1) = 0 - 0 = 0$	$\left. \begin{array}{l} \rightarrow \\ \rightarrow \\ \rightarrow \end{array} \right\} + = 11$
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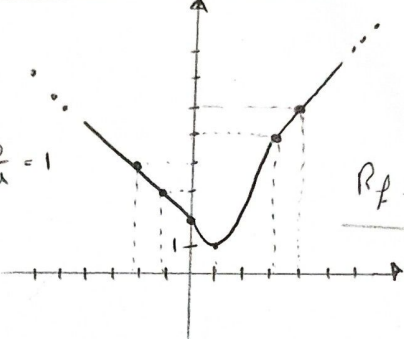
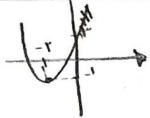


$$x-2 \left(\frac{-x^2}{2} + x + 3 \right) \rightarrow x^2 - 2x - 6 \rightarrow x^2 - 2x - 3 \rightarrow \frac{-1 \pm \sqrt{1+12}}{2}$$

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$y = \frac{x^2 + \delta x + m}{x+1} \rightarrow xy + y = x^2 + \delta x + m \Rightarrow x^2 + (\delta - y)x + m - y = 0$ $\Delta \geq 0 \rightarrow y^2 - 2y + (2\delta - \varepsilon m) \geq 0$ 2.1.0 باید A را به دست آوریم $39 - 10 + 14m \leq 0$ $14m \leq 49 \Rightarrow m \leq \frac{49}{14} = \frac{7}{2}$ $m = \varepsilon \rightarrow \frac{x^2 - \delta x + \varepsilon}{x+1} = x + \varepsilon \quad x = -1 \rightarrow m = 1, 2, 3$	6
$f(x) = \begin{cases} x+2 & ; x \geq 3 \\ x^2 - 2x + 2 & ; 0 \leq x < 3 \rightarrow x_{\min} = \frac{b}{2a} = 1 \\ x + 2 & ; x < 0 \end{cases}$  $R_f = [1, +\infty)$	7
$f(x) = \begin{cases} x^2 + \varepsilon x + 3 & ; x \leq 0 \rightarrow \textcircled{B} \\ [2x] - 2x & ; x > 0 \rightarrow \textcircled{A} \end{cases}$  $R_B = [-1, +\infty)$ $[2x] - 2x > -1 \rightarrow [0, -1)$ $R_T = R_A \cup R_B \Rightarrow R_T = [-1, +\infty) \cup [0, -1) = [-1, +\infty)$	8
$y = a + 1 - \sqrt{2x + 3}$ $2x + 3 \geq 0 \Rightarrow 2x \geq -3 \Rightarrow x \geq -\frac{3}{2} \Rightarrow D_f = [-\frac{3}{2}, +\infty) \Rightarrow b = -\frac{3}{2}$ اگر $a+1 = 5$ و $a = \varepsilon$ باشد $\Rightarrow ab = \varepsilon \cdot -\frac{3}{2} = -\frac{3\varepsilon}{2}$	9
$g(x) = \frac{f(x)}{x} = \frac{3\sqrt{2+2\sqrt{1-x^2}} - f(x)}{x}$ $\frac{f(x)}{x} = \frac{(3\sqrt{2+2\sqrt{1-x^2}} - f(x))}{x} = \frac{f(x)}{x} + \frac{f(x)}{x} - \sqrt{2+2\sqrt{1-x^2}}$ $x = \cos t \rightarrow D = [-1, 1]$ $\sqrt{x+1} + 2\sqrt{1-x} - \sqrt{4+2\sqrt{1-x^2}} = \sqrt{\cos t + 1} + 2\sqrt{1 - \cos t} - \sqrt{4 + 2\sqrt{1 - \cos^2 t}}$ $R_T = [0, \sqrt{2}]$	10