

$$f(x) = \sqrt{1-x^2} \quad D_f = [-1, 1] \quad f = \{(-1, 0), (0, 1), (1, 0)\}$$

$$g = \{(-1, 2), (0, 3), (1, 2)\}$$

$$f \cup g = \{(-1, 2), (0, 3), (1, 2)\}$$

$$f \cap g = \{(-1, 2), (0, 3), (1, 2)\}$$

$$f + g = \{(-1, 2), (0, 3), (1, 2)\}$$

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$$f(x) = x - 1 \quad D_f = [0, +\infty) \rightarrow R_f = [0, +\infty)$$

$$g(x) = \frac{1}{x} x + 3 \quad D_g = (-\infty, 0] \rightarrow R_g = (-\infty, 3]$$

$$R_f \cup R_g = (-\infty, 3] \cup [0, +\infty)$$

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$$y = \frac{-x^2}{4} + x + 3$$

$$\frac{-x^2}{4} + x + 3 > \frac{c}{4}$$

$$\frac{-x^2}{4} + x + 3 > 0$$

$$-x^2 + 4x + 12 > 0$$

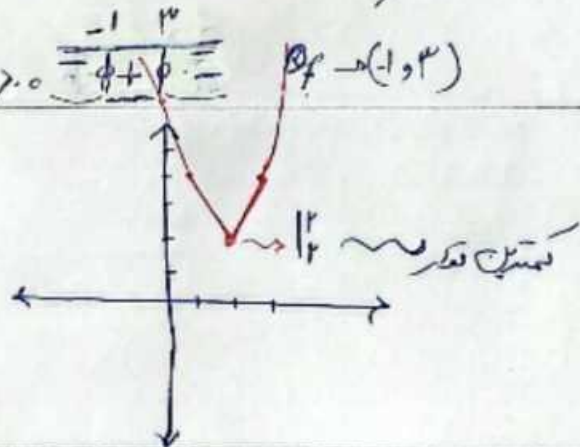
$$-(x+1)(x-3) > 0$$

$$\sqrt{b-a} = \sqrt{c} = 2$$

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$$y = |x-1| + |x-2| + |x-3|$$

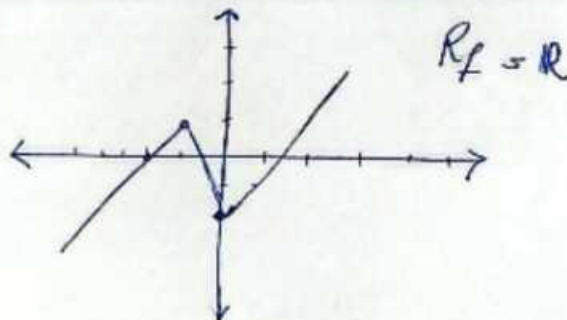
$$\begin{array}{c|c|c|c} 1 & 2 & 3 & \\ \hline -x+1 & -x+2 & -x+3 & \\ \hline \textcircled{+} & \textcircled{+} & \textcircled{+} & \end{array}$$



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

$$\begin{array}{c|c|c} -1 & 0 & \\ \hline x+1 & -x-1 & -x-1 \\ \hline |x+1| & \textcircled{-} & \textcircled{-} & |x+1| \\ \hline \end{array}$$



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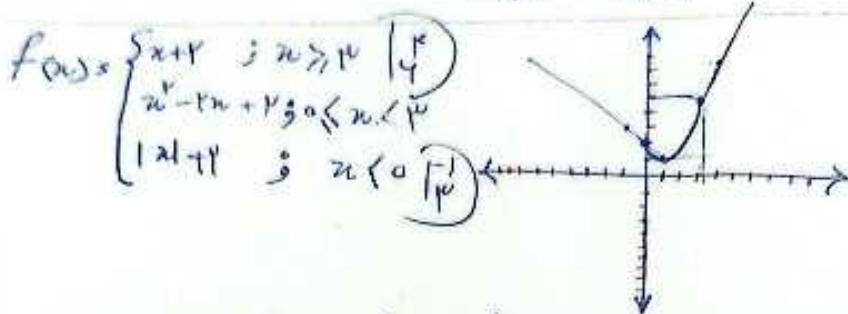
$$y = \frac{x^r + \omega x + m}{x+1} \rightarrow yx + y = x^r + \omega x + m \Rightarrow x^r + (\omega - y)x + (m - y) = 0$$

$$a > 0 \quad \Delta \geq 0$$

$$y - \omega = \frac{x^r + \omega x + m - (x^r + \omega x + m)}{x+1} \rightarrow y^r + r\omega - 1\omega y - r m + r y \geq 0 \quad m \in \{1, 2, \dots\}$$

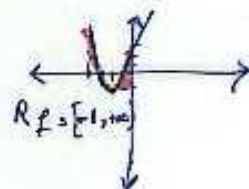
$$y^r - \omega y + r\omega - r m \geq 0 \quad \Delta = 100 + 14m < 0$$

$$a > 0 \quad \Delta < 0 \quad 14m < 48 \quad m < 4$$



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

$$f(x) = \begin{cases} x^r + rx + r & x \leq 0 \\ (rx) - rx & x > 0 \end{cases} \rightarrow \begin{cases} \frac{-b}{2a} = \frac{-r}{r} = -1 \\ r - 1 + r = -1 \end{cases}$$



$$R_f \cup R_{f'} = [-1, 0] \cup [-1, +\infty) = [-1, +\infty)$$

$$y = a + 1 - \sqrt{rx + r}$$

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

$$1) f \Rightarrow rx + r \geq 0$$

$$x \geq -\frac{r}{r}$$

$$y_{\min} = a$$

$$b = -\frac{r}{r}$$

$$a = a + 1 - a \quad a \leq r$$

$$ab = \left(\frac{r}{r}\right)(r) = -y$$

$$f(x) + g(x) = r\sqrt{1+r}\sqrt{1-x} = r\sqrt{(1+r)(1-x)} \quad f(x) = r\sqrt{x+1} + r\sqrt{1-x}$$

$$D_f = D_g$$

$$g(x) = r\sqrt{1-x} + r\sqrt{1+x} - r\sqrt{1+x} - r\sqrt{1-x} = \sqrt{1+x} - \sqrt{1-x}$$

$$D_f = D_g = [-1, 1] \quad y = \frac{f(x) - g(x)}{r} = \frac{\sqrt{x+1} + \sqrt{1-x} - \sqrt{1+x} + \sqrt{1-x}}{r}$$

$$\frac{\sqrt{x+1}}{r} \rightarrow x=1 \quad \frac{y}{\sqrt{r}} =$$

$$R_f = [0, \sqrt{r}]$$

$$\rightarrow x=1 \Rightarrow$$