

ایان سوالات (A) عدد 1

SUBJECT:

Year:

Month:

Day:

$$D_f = [-1, 1] \quad D_g = \{-1, 0, 1\} \quad D_f \cap D_g = \{-1, 0, 1\}$$

$$g(-1) = 1 \quad f(-1) = 0 \rightarrow 2g - 3f = 2 \quad g(0) = 1 \quad f(0) = 1 \rightarrow 2g - 3f = 0$$

$$g(1) = 2 \quad f(1) = 0 \rightarrow 2g - 3f = 4 \quad 2g - 3f = \{-1, 2\} \quad (0, 1) \times (1, 2)$$

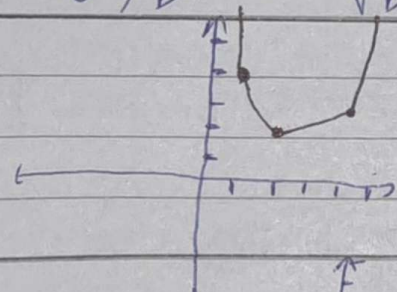
$$R_f = [\omega, 1] \cup (1, \infty) = [\omega, \infty)$$

$$R_g = (-\infty, 1] \cup (1, \infty) = (-\infty, \infty)$$

$$R_f \cap R_g = (-\infty, \infty) \cup [\omega, \infty) = [\omega, \infty)$$

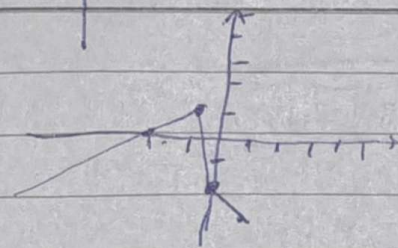
$$-\frac{1}{2}n^2 + n + 3 > \frac{3}{2} \rightarrow -\frac{1}{2}n^2 + n + \frac{3}{2} > 0 \rightarrow \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-1 \pm \sqrt{1 - 4(-\frac{1}{2})(\frac{3}{2})}}{2(-\frac{1}{2})}$$

$$-\frac{1}{2}n^2 + n + \frac{3}{2} > 0 \rightarrow a = -\frac{1}{2}, b = 1, c = \frac{3}{2} \rightarrow \sqrt{b^2 - 4ac} = \sqrt{1 - 4(-\frac{1}{2})(\frac{3}{2})} = \sqrt{4} = 2$$



$$\sqrt{b^2 - 4ac} = 2$$

$$\frac{-1 \pm 2}{-1} = \frac{-1 + 2}{-1} = -1 \quad \frac{-1 - 2}{-1} = 3$$

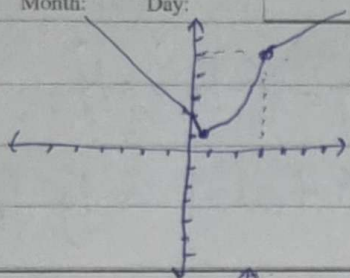


$$R_f = (-\infty, 1]$$

$$y_n + y = n^2 + \omega n + m \rightarrow n^2 + n(\omega - y) + m - y = 0 \rightarrow y = \frac{\omega + \sqrt{(\omega - y)^2 - 4(m - y)}}{2}$$

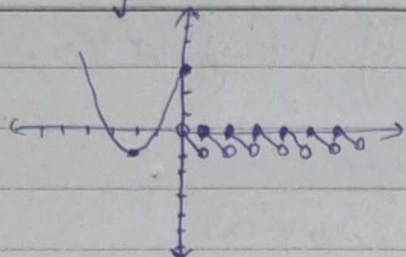
$$2\omega + y^2 - 4y - 4m + 4\omega > 0 \rightarrow 2\omega + y^2 - 4y - 4m + 4\omega > 0 \rightarrow 2\omega + y^2 - 4y - 4m + 4\omega > 0$$

$$\rightarrow m, \omega \rightarrow m = \{1, 2, 3, 4\}$$



$$x^2 - 2x + 1 \geq 0 \rightarrow \frac{-b}{a} = 1 \rightarrow x=1, y=1$$

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



$$\frac{-b}{a} = -1 \rightarrow x=-1, y=-1$$

$$[1] - 1 \rightarrow R_f = [\emptyset, -1]$$

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

$$D_y \rightarrow 2x+1 \geq 0 \rightarrow x \geq -\frac{1}{2} \rightarrow D_y = [-\frac{1}{2}, +\infty)$$

$$\rightarrow b = -\frac{1}{2}$$

$$R_y \rightarrow \sqrt{x+1} \text{ کثیر الجواب } \rightarrow \text{مفرد} \rightarrow R_y = (-\infty, +1] \rightarrow a = 1$$

$$ab = -\frac{1}{2}$$

$$D_f \Rightarrow \left. \begin{array}{l} x+1 \geq 0 \rightarrow x \geq -1 \\ 1-x \geq 0 \rightarrow 1 \geq x \end{array} \right\} \Rightarrow D_f = D_g = [-1, 1]$$

$$g(x) = 3\sqrt{2+2\sqrt{1-x^2}} - 2\sqrt{x+1} - 5\sqrt{1-x}$$

$$\frac{f(x)}{x} - \frac{g(x)}{x} = \frac{2\sqrt{x+1} + 5\sqrt{1-x}}{x} - \frac{3\sqrt{2+2\sqrt{1-x^2}} - 2\sqrt{x+1} - 5\sqrt{1-x}}{x}$$

$$\frac{\sqrt{x+1}}{x} + \frac{2\sqrt{1-x}}{x} + \frac{2\sqrt{x+1}}{x} + \frac{5\sqrt{1-x}}{x} - \frac{3\sqrt{2+2\sqrt{1-x^2}}}{x}$$

$$= \sqrt{x+1} + 2\sqrt{1-x} - \sqrt{2+2\sqrt{1-x^2}} = \sqrt{x+1} + \sqrt{1-x} - |\sqrt{1-x} + \sqrt{x+1}|$$

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

$$\rightarrow D = [-1, 1] \rightarrow R = [0, \sqrt{2}]$$

