

$(11, 15)$

$(1, 15)$

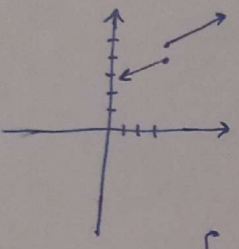
$$D_f \cap D_g = \{-1, 1\}$$

$$g_{(-1)} = 1 \quad f_{(-1)} = 0 \quad 2g_{(-1)} - 3f_{(-1)} = 2$$

$$g_{(1)} = 2 \quad f_{(1)} = 0 \quad 2g_{(1)} - 3f_{(1)} = 4$$

$$\Rightarrow 2g - 3f = \{(-1, 2), (1, 4)\}$$

$$2 + 4 + 5 = 11$$



$$R = 1R - (2, 5)$$

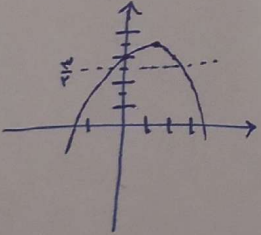
$$f_{(3)} = 5 \quad g_{(3)} = 4$$

(2)

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

$$x = \frac{\pm\sqrt{1} - 1}{-1} = \sqrt{1} + 1 / 1 - \sqrt{1}$$

$$S \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$

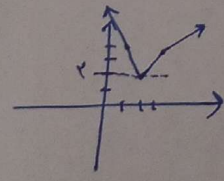


$$\frac{y}{x} = -\frac{x^2}{2} + x + 3$$

$$x = -1, 3 \Rightarrow \sqrt{b-a} \text{ بیشترین مقدار} = \sqrt{3-(-1)} = \sqrt{4} = 2 \Rightarrow \boxed{+2}$$

(2)

$$\begin{array}{c|c|c|c} 1 & 2 & 3 & \\ \hline -4x+1 & -2x+6 & 2x-5 & 4x+1 \end{array}$$



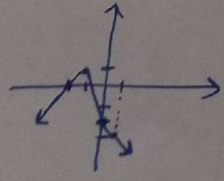
$$x=1 \Rightarrow y=5$$

$$x=3 \Rightarrow y=5$$

$$x=2 \Rightarrow \boxed{y=2}$$

(2)

$$\begin{array}{c|c|c} -1 & 0 & \\ \hline x+2 & -3x-2 & -x-2 \end{array}$$



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

(2)

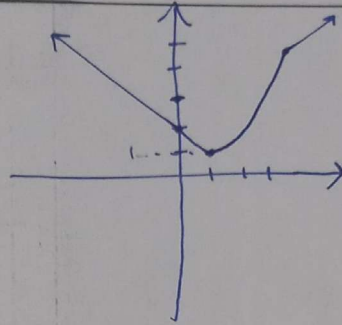
$$\frac{x^r + \omega x + m}{x+1} = x + r + \frac{m-r}{x+1}$$

$$y = x + 1 + r + \frac{m-r}{x+1} \Rightarrow y = x + r + \frac{m-r}{x+1}$$

$$x^r + (a-j)x + m-j \rightarrow x \cdot \frac{j - \Delta \pm \sqrt{(a-j)^2 - r(a-j)}}{r} \rightarrow y = y_1 y_2 + r - r_m$$

$\Delta y \rightarrow 1 > 0$
 $\Delta x \rightarrow m < r \rightarrow$ *نقطه بحرانی داریم*
 $m = 1 \text{ و } r$

$$f(x) = \begin{cases} x+r & x \geq r \\ x^r - rx + r & 0 \leq x < r \\ |x| + r & x < 0 \end{cases}$$

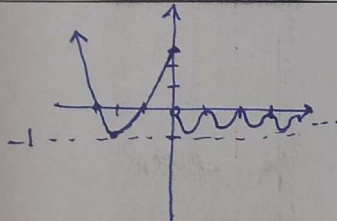


$$R = [1, +\infty)$$

$$y = x^r + rx + r$$

$$y = [rx] - rx$$

$$-1 < [rx] - rx \leq 0$$



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

$$rx + r \geq 0$$

$$x \geq -\frac{r}{r} \Rightarrow b = -\frac{r}{r}$$

$$\omega = a + 1 - \sqrt{rx - \frac{r}{r} + r} \Rightarrow a = r$$

$$ab = r \times \frac{r}{r} = \boxed{-8}$$

$$y = \frac{f(x)}{g} - \frac{r(f(x) + g(x) - f(x))}{g} = \frac{r f(x) - r(f(x) + g(x))}{g} = \frac{r f(x) - r \sqrt{r+r\sqrt{1-x^r}}}{g} = \frac{f(x) - r \sqrt{r+r\sqrt{1-x^r}}}{r}$$

$$x=1 \rightarrow \frac{r\sqrt{r} - r\sqrt{r}}{r} = 0$$

$$x=-1 \rightarrow \frac{r\sqrt{r} - r\sqrt{r}}{r} = \sqrt{r}$$

$$\Rightarrow R = [0, \sqrt{r}]$$

$$D_f = D_g = [-1, 1]$$