

$$\text{راس } (4, 3) \rightarrow a(n-4)^2 + 3 \rightarrow a = -\frac{1}{3}$$

$$-\frac{1}{3}(n-4)^2 + 3 = 0 \rightarrow -\frac{1}{3}(n-4)^2 = -3 \rightarrow (n-4)^2 = 9$$

$$n-4 = 3 \rightarrow n = 7$$

$$n-4 = -3 \rightarrow n = 1$$

1

$$y = 1 - 2f(3n+2)$$

ما باید نقطه‌ای (نظیر (4, 1)) را در تابع  $f(n)$  وجود دارد راوی نمودار  $1 - 2f(3n+2)$  بیابیم

$$3n+2 = 1 \rightarrow 3n = -1 \rightarrow n = -\frac{1}{3} \rightarrow \alpha$$

$$f(3n+2) = f(n) = 4 \rightarrow 1 - 2f(3n+2) = 1 - 2 \times 4 = 1 - 8 = -7$$

$$\alpha \times \beta = -\frac{1}{3} \times -7 = \frac{7}{3}$$

2

$$y = 3 - \sqrt{2n} \xrightarrow{\text{باید به صورت } y = 3 - \sqrt{2(n+1)}} \text{قرینه به محور } y = \sqrt{2n+2} - 3 \xrightarrow{\text{باید به بالا}}$$

$$y = \sqrt{2n+2} + 2 = \frac{5}{2} \quad \sqrt{2n+2} = \frac{3}{2} \quad 2n+2 = \frac{9}{4} \quad 2n = \frac{1}{4}$$

$$n = \frac{1}{8}$$

3

$$D_f = (a, 4]$$

$$D_{f(n+1)}: a < n+1 \leq 4 \rightarrow a+1 < n \leq \infty \rightarrow \begin{matrix} a+1 = -2 \\ a = -3 \end{matrix}$$

$$D_g = [-1, b)$$

$$-1 \leq n+1 < b \rightarrow -2 \leq n < b-1 \rightarrow \begin{matrix} b-1 = \infty \\ b = 6 \end{matrix}$$

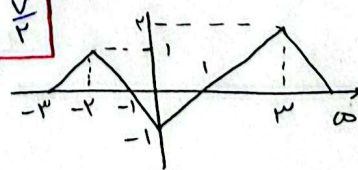
$$a - b = -3 - (6) = -9$$

4

$$y_1 = f\left(\frac{n}{2} + 1\right) \rightarrow \begin{matrix} -3 \leq n \leq \infty & -\frac{3}{2} \leq \frac{n}{2} \leq \frac{\infty}{2} & -\frac{3}{2} \times \frac{n}{2} + 1 \leq \frac{5}{2} \end{matrix}$$

$$D_f = [-3, \infty) \rightarrow D_r = \left[-\frac{3}{2}, \frac{5}{2}\right]$$

$$R_f = [-1, 2] \xrightarrow{\times 2} [-2, 4] \xrightarrow{-3} [-\infty, 1]$$



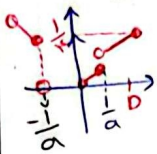
قرصه‌ها  $[1, \infty)$

جدا

$$R_{y_1} = [1, \sqrt{5})$$

5

$$y = \frac{a}{a} [am] \quad 0 < am < 1 \rightarrow 0 < a \leq \frac{1}{a}$$



$$-2 \leq am \leq -1 \rightarrow \frac{1}{a} \leq a \leq -\frac{1}{a} \rightarrow f\left(-\frac{1}{a}\right) = -\frac{1}{a} \left[ a \times -\frac{1}{a} \right]$$

$$\rightarrow \frac{1}{a^2} = \frac{1}{a} \rightarrow a^2 = a \rightarrow a = \pm 1 \rightarrow a = 1 \text{ پس } a = -2$$

$$1 < am \leq 2 \rightarrow \frac{1}{a} < a \leq \frac{2}{a} \rightarrow \frac{1}{a} = b \rightarrow \frac{2}{b} = 1$$

$$a = 2, b = 1 \quad b - a \rightarrow 1 - 2 = -1$$

$$f(m) = \log_p m \quad \text{واحد ۲} \quad y = \log_p^{m+2} \quad \text{قرینه به محور } y = -\log_p^{m+2}$$

$$g(m) = y = -\log_p^{m+2} + 3 \quad \text{قرینه به محور } y = -\log_p^{m+2} + 3 \quad \text{انتقال محور (۳ واحد به بالا) } + 3 \rightarrow y = -\log_p^{m+2} + 3$$

$$g(-14) + g(-42) = -\log_p^{-(14)+2} + 3 + -\log_p^{-(42)+2} + 3 = -3$$

$$- \log_p^{-(14)+2} + 3 = -\log_p^{14} + 3 = -1$$

$$g(-14) + g(-42) = -3 + (-1) = -4$$

-4

$$R_f = [1, 3]$$

$$2 - f(2-m) \Rightarrow$$

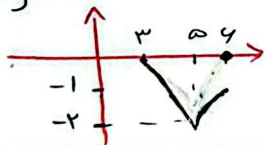
$$1 \leq -y + 2 \leq 3$$

$$-1 \leq -y \leq 1 \rightarrow -1 \leq y \leq 1$$

Rf

$$\rightarrow -2 \leq y - 1 \leq 0$$

$$D_f = [-2, 1] \rightarrow -2 \leq m \leq 1 \rightarrow -1 \leq -m \leq 2 \rightarrow 2 \leq -m + 3 \leq 5$$



$$3 \leq m \leq 4$$

المون تابع را بر روی این

$$f(m) = \left| \frac{m+1}{2m+1} \right| + 1 = g(m) \rightarrow \left| \frac{m-1}{2m-3} \right| + 1$$

$$m + g(m) < 0 \rightarrow \frac{m}{m+1} + \frac{m}{g(m)} < 0 \quad \text{نیازی به بررسی نیست چون } m > 0$$

$$m + \frac{m-1}{2m-3} + 1 < 0 \quad \frac{m-1}{2m-3} + m + 1 < 0 \quad \frac{2m^2 + 2m - 3m - 3 + m - 1}{2m-3} < 0 \quad \frac{2m^2 - 2m - 4}{2m-3} < 0$$

$$\textcircled{1} \cap \textcircled{2} \Rightarrow (-\infty, -\sqrt{2}) \cup (\sqrt{2}, \frac{3}{2})$$

$$y = m^3$$

$$(2, 27) \cup (0, 0)$$

تابع از این دو نقطه می گذرد

$$\frac{27}{\lambda} (m-2)^3 + 27 = 28 \quad (m-2)^3 = \frac{1}{27} \rightarrow m-2 = \frac{1}{3} \rightarrow m = \frac{13}{3}$$

قرینه تابع ۲ واحد به راست و ۲۷ واحد به بالا انتقال یافته

$$y = a(m-2)^3 + 27 \rightarrow (0, 0) \quad -8a + 27 = 0 \rightarrow a = \frac{27}{8}$$

$$y = \frac{27}{8} (m-2)^3 + 27 \quad \sqrt{28 - f(m)} - f^2(m) \rightarrow \sqrt{f(m) (28 - f(m))}$$

$$D_g = [0, \frac{1}{3}]$$