

$$A \text{ دایره دایره } = \sqrt{a^2 + b^2}$$

$$1 = \frac{1}{\sqrt{a^2 + b^2}}$$

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$$a) y^r - r n^r = r n - 1 \rightarrow y^r = r n^r + r n - 1$$

$$b) n \text{ say } y = y \text{ say } n \quad \text{if } n = \frac{n}{r}$$

$$y = \sqrt[r]{r n^r + r n - 1}$$

$$\begin{aligned} \text{if } n_1 &\leq n_2 \\ r n_1^r &= r n_2^r \\ r n_1^r + r n_1 - 1 &= r n_2^r + r n_2 - 1 \\ \sqrt[r]{r n_1^r + r n_1 - 1} &= \sqrt[r]{r n_2^r + r n_2 - 1} \\ y_1 &= y_2 \end{aligned}$$

$$\begin{aligned} \rightarrow \text{say } n &= \dots \\ \rightarrow n \text{ say } y &= \dots \\ \{ n &= XX \\ \text{say } y &= 0 \rightarrow y = \frac{n}{r} \end{aligned}$$

$$c) \frac{n+y}{r} \sqrt[r]{r n y} \rightarrow n+y \sqrt[r]{r n y}$$

$$\begin{aligned} n+y &= r \sqrt[r]{r n y} \\ (\sqrt[r]{n-y})^r &\rightarrow \sqrt[r]{r n y} \rightarrow n y \end{aligned}$$

$$\begin{aligned} n y^r + r n - y^r - r y &= 0 \\ n(y^r + r) - y(y^r + r) &= 0 \\ n(y^r + r) &= y(y^r + r) \end{aligned}$$

$$a) |y| + n^r = r y \rightarrow \dots$$

$$\begin{aligned} |y| = r y - n^r &\rightarrow \begin{cases} y = r y - n^r \rightarrow y \geq n^r \\ y = -r y + n^r \rightarrow y \leq \frac{n^r}{2} \end{cases} \end{aligned}$$

$$\rightarrow [y] + [n] \leq 1 \rightarrow [y] = 1 - [n] \text{ if } n=1 \rightarrow [y] = 0 \rightarrow 0 \leq y < 1 \rightarrow X \text{ مع } \bar{c}$$

$$f(n) = \begin{cases} r n^r - b & |n-1| \geq r \\ a + r n & |n-1| < r \end{cases} \rightarrow \begin{cases} n-1 \geq r \rightarrow n \geq r \\ n-1 \leq -r \rightarrow n \leq -1 \end{cases}$$

$$\Rightarrow f(n) = \begin{cases} r n^r - b & n \geq r \\ r n + a & 0 \leq n \leq r \\ r n^r - b & n \leq -1 \end{cases}$$

$$\begin{aligned} \rightarrow f(r) &\rightarrow \begin{cases} r(r)^r - b = 11 - b \\ r(r) + a = 4 + a \end{cases} \rightarrow \begin{cases} 11 - b = 4 + a \\ a + b = 17 \end{cases} \end{aligned}$$

$$f(n) = \sqrt{-n^r - b n + a} \rightarrow D_f: [b, a]$$

$$\rightarrow -n^r - b n + a \geq 0$$

$$\frac{b}{-1} \frac{a}{1} \rightarrow b, a \rightarrow f(a) = f(b) = 0$$

$$f(b) = -b^r - b^r + a = 0 \rightarrow a = 2b^r \text{ (I)}$$

$$f(a) = -a^r - ab + a = 0 \rightarrow a^r + ab - a = 0 \text{ (II)}$$

$$(r b^r)^r + b(r b^r) - r b^r = 0 \rightarrow r^2 b^{2r} + r b^{r+1} - r b^r = 0$$

$$r b^r (r b^r + b - 1) = 0 \rightarrow r b^r (b+1)(r b - 1) = 0$$

$$b = 0 \rightarrow a = 0 \text{ (not)}$$

$$\begin{aligned} b = -1 &\rightarrow a = 2 \\ b = \frac{1}{r} &\rightarrow a = \frac{1}{r} \end{aligned} \Rightarrow a + b = 1 \text{ (1)}$$

$$y = \frac{r}{\sqrt{a n^r + b n + c}} \rightarrow D_f: (-\infty, r) \rightarrow a n^r + b n + c > 0 \xrightarrow{a=0} b n + c > 0$$

$$\begin{aligned} \frac{-c}{b} &\rightarrow \frac{-c}{b} < r \\ + \quad | \quad - &\rightarrow b c < 0 \\ -\frac{c}{b} = r &\rightarrow c = -r b \end{aligned}$$

$$\rightarrow r a + c - r |b| = 0 \rightarrow -r b + r b = 0 \text{ (b)}$$

$$y = \sqrt{\frac{n+2}{n+b} + a} \rightarrow \frac{n+2}{n+b} + a > 0 \rightarrow \frac{n+2+an+ab}{n+b} > 0 \rightarrow \frac{(a+c)n + 2+ab}{n+b} > 0$$

از آنجا که دانه این تابع صعودی (۲، ۴) شریف شده است پس تابع صعودی خواهد بود و صورت را خارج کنیم پس
 است پس در صورتی که صورت ب- است

$$(a+c) - b + 2 + ab > 0$$

$$-ab - cb + 2 + ab > 0$$

$$cb > 2 \rightarrow b > \frac{2}{c}$$

$$\text{الف) } y = \sqrt{n^2 - n} \rightarrow n^2 - n > 0$$

$$n(n+1)(n-1) > 0 \rightarrow \frac{-1}{-1} + \frac{1}{1} - \frac{1}{1} > 0$$

$$D_f: [-1, 0] \cup [1, +\infty)$$

$$\text{ب) } y = \frac{1}{\sqrt{|n|-1}} \rightarrow |n|-1 > 0 \rightarrow |n| > 1 \rightarrow \begin{cases} n > 1 \\ n < -1 \end{cases}$$

$$D_f: (-\infty, -1) \cup (1, +\infty)$$

$$\text{الف) } y = \sqrt[3]{\frac{1}{|n| - [n]}}$$

$$\rightarrow |n| - [n] \neq 0 \rightarrow |n| \neq [n] \rightarrow D_f: \mathbb{R} - \{2^+ \cup 0\}$$

$$D_f: (-\infty, 0) \cup \{n | n > 0, n \notin \mathbb{Z}\}$$

$$\text{ب) } \sqrt{n} + \sqrt{y} = 9 \quad \text{① } n \geq 0$$

$$\text{② } \rightarrow \sqrt{y} = 9 - \sqrt{n} \rightarrow y = 81 + n - 18\sqrt{n} = n - 18\sqrt{n} + 81$$

$$\rightarrow 9 - \sqrt{n} > 0 \rightarrow \sqrt{n} \leq 9 \rightarrow n \leq 81$$

$$\rightarrow D_f: [0, 81]$$

$$y = \frac{1}{\sqrt{[r_n - \frac{1}{r}] + [r_n + \frac{c}{r}]}}$$

$$\rightarrow [r_n - \frac{1}{r}] + [r_n + \frac{c}{r}] > 0 \xrightarrow{\text{در نظر بگیریم}} [r_n - \frac{1}{r}] + 2 + [r_n + \frac{c}{r}] > 2$$

$$\rightarrow 2[r_n + \frac{c}{r}] > 2 \rightarrow [r_n + \frac{c}{r}] > 1 \rightarrow r_n + \frac{c}{r} \geq 2$$

$$r_n \geq \frac{1}{r}$$

$$n \geq \frac{1}{\varepsilon}$$

$$D_f: [\frac{1}{\varepsilon}, +\infty)$$

$$y = \sqrt{1 - \ell_y(r_n - a)} \rightarrow D_f: (b, c]$$

$$\rightarrow \text{① } r_n - a > 0 \rightarrow n > \frac{a}{r} \rightarrow \frac{a}{r} < b$$

$$\text{② } 1 - \ell_y(r_n - a) > 0 \rightarrow \ell_y(r_n - a) \leq 1 \rightarrow r_n - a \leq 1$$

$$n \leq \frac{1+a}{r} \rightarrow \frac{1+a}{r} = c$$

$$c - b = \frac{a+b}{r} - \frac{a}{r} = \textcircled{a}$$