

الف  $\rightarrow \sqrt{\frac{x-1}{x}} - \frac{m}{n-1}$   $x \in \mathbb{R} \setminus \{0, 1\}$  ب  $\rightarrow \frac{1}{x+1} - \frac{r}{m}$   $D_f = \mathbb{R} \setminus \{-1, 0, 1, -r, -\frac{m}{r}\}$

$$\frac{n-1}{x} - \frac{m}{n-1} \geq 0$$

$$\frac{x+1-2n-x^2}{x(n-1)} \geq 0$$

$$\frac{1-2n}{n^2-n} \geq 0$$

$$1-2n \geq 0 \rightarrow 1 \geq 2n \rightarrow \frac{1}{2} \geq n$$

$$x(n-1) > 0$$

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

$$\frac{1}{x} \geq \frac{1}{n} \rightarrow x \leq n$$

$$D_f = (-\infty, 0) \cup (1, +\infty)$$

الف  $\rightarrow ((\frac{1}{x})^n - 9)(x^2 - \varepsilon^m) \geq 0$   $\frac{1}{x} = 3$   $\frac{1}{x} = 3^r$   $x = -r$

$$x^2 - \varepsilon^m \geq 0$$

$$x^2 = \varepsilon^m$$

$$x = \varepsilon^{\frac{m}{2}}$$

$$D_f = (-\infty, -r] \cup [\frac{m}{r}, +\infty)$$

ب  $\rightarrow \sqrt{y+1} = 3 - \sqrt[n]{n-1}$

$$y+1 = 9 + \sqrt[n]{n-1} - 6\sqrt[n]{n-1}$$

$$y = 8 + \sqrt[n]{n-1} - 6\sqrt[n]{n-1}$$

$$y = (\sqrt[n]{n-1} - 3)(\sqrt[n]{n-1} - 2)$$

$$n-1 \geq 0 \rightarrow n \geq 1$$

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

$\log_f \frac{n^2-n-2}{(x-r)(n+1)} \geq 0$   $n^2-n-2 \geq 0$   $(x-r)(n+1) \geq 0$   $D_f = (-\infty, -1) \cup (2, +\infty)$

مخرج  $\rightarrow \sqrt{n^2-1} + 1 = 0$   $\sqrt{n^2-1} = -1$   $n^2-1 \geq 0$   $(n-1)(n+1) \geq 0$   $D_f = (-\infty, -1) \cup (1, +\infty)$

$x^2 + am - n^2 \geq 0$   $-(n^2 - am - x) \geq 0$   $n^2 - am - x \leq 0$   $\frac{x^2 - (\frac{1}{r})x - 3}{(n+2)(n-\frac{m}{r})} \leq 0$   $\frac{m}{r} = 2$   $a+b = \frac{1}{r} + \frac{m}{r} = 2$

آن یک ریشه منبسط است  $\frac{3}{r}$  ریشه دیگر  $(-2)$  است  $D_f = (-\infty, -1) \cup (2, +\infty)$

$f(n) - n \geq 0$   $3n - 2 - n \geq 0$   $2n - 2 \geq 0$   $2(n-1) \geq 0$   $n \geq 1$   $D_f = [1, +\infty)$

حالت  $f(n)$   $n$  یکی است

$$\sin \frac{\pi}{4} + \cos \pi =$$

$$\sin \frac{\pi}{4} + \cos \pi = \frac{\sqrt{2}}{2} + 1 = \frac{2 + \sqrt{2}}{2}$$

$$f\left(\frac{2 + \sqrt{2}}{2}\right) = 2 \left(\frac{2 + \sqrt{2}}{2}\right)^2 - 2 \left(\frac{2 + \sqrt{2}}{2}\right) =$$

$$2 \left(\frac{4 + 4\sqrt{2} + 2}{4}\right) - 2 \left(\frac{2 + \sqrt{2}}{2}\right) = 1 + \sqrt{2} - 2 - \sqrt{2} = -1$$

$$f(f(a)) = a$$

$$f(?) = a$$

$$\frac{n+1}{n-1} = a \Rightarrow f\left(\frac{n+1}{n-1}\right) = a$$

$$? = f(a)$$

$$f(a) = \frac{n+1}{n-1}$$

$$f(n) = \frac{n+1}{n-1}$$

$$Df = R - \{1\}$$

$$f(g(a)) = -\varepsilon$$

$$f(?) = -\varepsilon$$

$$n^2 - \varepsilon n = -\varepsilon$$

$$n^2 - \varepsilon n + \varepsilon = 0$$

$$(n - \varepsilon)^2 = 0 \rightarrow n = \varepsilon$$

$$g(a) = \varepsilon$$

$$\sqrt{n^2 - 1} = \varepsilon$$

$$\sqrt{(n-1)(n+1)} = \varepsilon \rightarrow (n-1)(n+1) = \varepsilon^2$$

$$n = \sqrt{\varepsilon^2 + 1}$$

$$a = \sqrt{\omega}$$

$$n + \pi = 1 \rightarrow n = 1$$

$$f(\varepsilon) = 1 - \omega + \pi = \pi$$

$$n + \pi = -\pi \rightarrow n = -2\pi$$

$$f(-\pi) = \pi^2 + \pi + \pi = 2\pi$$

$$\sqrt{\pi \times \pi} = \pi$$

$$f \cos^2 u + \omega \cos u = \frac{\pi \omega}{\sqrt{\pi}}$$

$$f \cos^2 u + \omega \cos u = \frac{\pi}{\sqrt{\pi}} = 0$$

$$\cos^2 u + 1 \cdot \cos u - \sqrt{\pi} = 0$$

$$\cos^2 u + 1 \cdot \cos u - \omega \pi = 0$$

$$(\cos u + 1)(\cos u - \frac{\pi}{2}) = 0$$

$$\cos u = -1 \text{ or } \cos u = \frac{\pi}{2}$$

$$\cos u = \frac{1}{\sqrt{\pi}} \rightarrow u = \frac{\pi}{4}$$

$$\Rightarrow f(\pi \omega) = \tan^2 \frac{\pi}{4}$$

$$\Rightarrow (\sqrt{\pi})^2 = \pi$$

1.