

الف) $\frac{(n-1)^2 - n^2}{n(n-1)} \geq 0 \rightarrow (n-1)^2 - n^2 = n^2 - 2n + 1 - n^2 = 1 - 2n$ $\frac{1-2n}{n(n-1)} \geq 0 \rightarrow \frac{1}{n} \geq \frac{2}{n-1}$
 $\frac{1}{n} \geq \frac{2}{n-1} \rightarrow \frac{1}{n} - \frac{2}{n-1} \geq 0 \rightarrow \frac{n-2}{n(n-1)} \geq 0$
 $D_f = (-\infty, 0) \cup [2, +\infty)$ (۱.۷۵)

ب) $\frac{3}{n-1} + \frac{1}{n+2} \neq 0 \rightarrow \frac{3(n+2) + (n-1)}{(n-1)(n+2)} = \frac{3n+6+n-1}{(n-1)(n+2)} = \frac{4n+5}{(n-1)(n+2)}$
 $4n+5 \neq 0 \rightarrow n \neq -\frac{5}{4}$ $D_f = \mathbb{R} - \{-2, -\frac{5}{4}, 0, 1\}$
 $n \neq 1, n \neq -2, n \neq 0, n \neq -1, n \neq \frac{5}{4}$

الف) $(\frac{1}{n})^n - 9 \geq 0 \rightarrow D_f = (-\infty, -2] \cup [\frac{5}{4}, +\infty)$
 $n = -2 \leftarrow$ $n = \frac{5}{4} \leftarrow$ ارفاق

ب) $n-1 \geq 0 \rightarrow n \geq 1$
 $\sqrt{y+1} = 3 - \sqrt{n-1} \rightarrow 3 - \sqrt{n-1} \geq 0 \rightarrow 3 \geq \sqrt{n-1} \rightarrow n \leq 12$
 $D_f = [1, 12]$

$3 - an - n^2 = 0 \rightarrow n^2 + an - 3 = 0$
 $\Delta = a^2 + 12$
 $n = \frac{-a \pm \sqrt{a^2 + 12}}{2}$
 $-2 \times b = -3 \rightarrow b = \frac{3}{2}$
 $-2 + \frac{3}{2} = a \rightarrow a = -\frac{1}{2}$
 $a + b = \frac{3}{2} - \frac{1}{2} = 1$
(۳) جواب سوال ۴

$n^2 - 1 \geq 0 \rightarrow n^2 \geq 1 \rightarrow n \geq 1, n \leq -1$
 $f(n) = \log_e \frac{(n^2 - n - 2)(n+1)}{(n-2)(n+1)}$
 $\frac{\sqrt{n^2 - 1} + 1}{n+1}$
 $D_f = (-\infty, -2] \cup [2, +\infty)$ (۲) جواب سوال ۳

$f(n) - n \geq 0 \rightarrow$
 $n \geq 1 \rightarrow 3n - 2 - n \geq 0 \rightarrow 2n - 2 \geq 0 \rightarrow n \geq 1$
 $n < 1 \rightarrow 2n + 3 - n \geq 0 \rightarrow n + 3 \geq 0 \rightarrow n \geq -3$
 $D_f = [-3, +\infty)$ (۲)

$$\frac{\sin \frac{\pi}{r} + \cos \frac{\pi}{r}}{\frac{\sqrt{r}}{r}} \rightarrow f\left(1 + \frac{\sqrt{r}}{r}\right)$$

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$$r \times \left(1 + \frac{\sqrt{r}}{r}\right) - r \left(1 + \frac{\sqrt{r}}{r}\right) \rightarrow r \left(\frac{r}{r} + \sqrt{r}\right) - r - r\sqrt{r} =$$

$$\frac{r}{r} + r\sqrt{r} - r - r\sqrt{r} = \frac{r}{r} - r = \frac{-1}{r} \quad \text{D}$$

$$f\left(\frac{a+1}{a-1}\right) = a \rightarrow \frac{\frac{a+1+a-1}{a-1}}{\frac{a+1-a+1}{a-1}} = a \rightarrow \frac{2a}{r} = a$$

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$$a \in \mathbb{R} - \{1\}$$

D

الاشارة الى

$$g(a) = y \rightarrow y^r - ay = -r$$

$$y^r - ay + r = 0 \rightarrow (y-r)^r = 0 \rightarrow y = r$$

D

$$\sqrt{a^r - 1} = r \rightarrow a^r - 1 = r \rightarrow a^r = a + r \rightarrow a = \pm \sqrt{a}$$

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$$f(r) \Rightarrow n=1: 1 - a + r = r$$

$$f(-r) \Rightarrow n=-r: r^r + r^0 + r = r^r$$

$$\sqrt{r \times r} = 1 \quad \text{D}$$

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$$r \cos^r + \omega \cos = \frac{r}{r} \omega$$

$$r \cos^r + 10 \cos = r \rightarrow r \cos^r + 10 \cos - r = 0 \rightarrow \cos = t$$

$$r t^r + 10 t - r = 0 \rightarrow t = \frac{-10 \pm \sqrt{100 - 4r}}{2r} \rightarrow t = \frac{1}{r} \rightarrow \cos = \frac{1}{r}$$

$$\tan m = r$$

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 $\rightarrow D_f = (-\infty, -1) \cup [0, \frac{1}{2}) \cup (1, \infty)$

(٢-الف) $((\frac{1}{r})^n - 9)(3r - \varepsilon^n) \geq 0 \rightarrow$

$(\frac{1}{r})^n = 9 \rightarrow n = -2$ $3r = \varepsilon^n \rightarrow n = \frac{5}{r}$

$\frac{-2}{+|-|-|+} \rightarrow Df: (-\infty, -2] \cup [\frac{5}{r}, +\infty)$