

Subject:

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$$y = \sqrt{\frac{n^2 - 4n}{n^2 - n}} \rightarrow \frac{n(n-4)}{n(n-1)(n+1)}$$

$$\frac{-1}{-1} + \frac{0}{0} + \frac{1}{1} - \frac{1}{1}$$

$$D_f = (-1, 0) \cup (0, 1) \cup [4, +\infty)$$

$$y = \sqrt{\frac{n^2 - 4}{n^2 - n}} \rightarrow \frac{n(n-4)}{n(n-1)(n+1)}$$

$$\frac{-1}{-1} + \frac{0}{0} + \frac{1}{1} + \frac{1}{1}$$

$$D_f = \mathbb{R} - \{-1, 0, 1\}$$

$$y = \frac{n+1}{\sqrt{n+|n|}}$$

$$n + |n| = 0 \Rightarrow n + |n| \neq 0 \Rightarrow n \neq 0 \text{ و } n < 0$$

$$D_f = (0, +\infty) \quad (1-2)$$

$$y = \frac{1}{\sqrt{n|n|}}$$

$$\left. \begin{array}{l} n|n| > 0 \\ |n| > 0 \end{array} \right\} \Rightarrow n > 0, n|n| \neq 0 \Rightarrow n \neq 0 \Rightarrow n > 0$$

$$D_f = (0, +\infty) \quad (2)$$

$$y = \sqrt{r - [n]} \Rightarrow r - [n] > 0 \Rightarrow r > [n] \Rightarrow D_f = (-\infty, r)$$

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

$$r - [n] > 0 \Rightarrow r > [n] \Rightarrow D_f = (-\infty, r)$$

$$y = \sqrt{\left[n - \frac{1}{r}\right] + \left[n + \frac{r}{r}\right]}$$

$$\left[n - \frac{1}{r}\right] + \left[n + \frac{r}{r}\right] > 0 \Rightarrow n > \frac{1}{r}$$

$$\left[n - \frac{1}{r}\right] + \left[n - \frac{1}{r} + 1\right]$$

$$\left[n - \frac{1}{r}\right] + \left[n - \frac{1}{r}\right] + 1$$

$$D_f = \left[\frac{1}{r}, +\infty\right)$$

$$r \left[n - \frac{1}{r}\right] > 1$$

$$\left[n - \frac{1}{r}\right] > -\frac{1}{r} \Rightarrow n > \frac{1}{r}$$

IDEAL

Subject:

$$y = \sqrt{\left[n - \frac{1}{r}\right] + \left[-n + \frac{1}{r}\right]} \quad \left[n - \frac{1}{r}\right] + \left[-n + \frac{1}{r}\right] \geq 0 \quad D_f = \mathbb{R} \quad (1-)$$

$$\left[n - \frac{1}{r}\right] - \left[n - \frac{1}{r}\right] = 0 \Rightarrow \text{مساوية}$$

$$y = \frac{r}{\sin n - 1} \Rightarrow \sin n - 1 \neq 0 \Rightarrow \sin n \neq 1 \Rightarrow n \neq k\pi + \frac{\pi}{2} \Rightarrow D_f = \mathbb{R} - \left\{k\pi + \frac{\pi}{2}\right\} \quad (1-)$$

$$y = \frac{r}{r \sin^2 n - 1} \Rightarrow r \sin^2 n - 1 \neq 0 \Rightarrow r \sin^2 n \neq 1 \Rightarrow \sin^2 n \neq \frac{1}{r} \Rightarrow \sin n \neq \pm \frac{1}{\sqrt{r}} \quad (1-)$$

$$n \neq k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}$$

$$D_f = \mathbb{R} - \left\{k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\right\}$$

$$y = \sqrt{r \sin n - 1} \quad r \sin n - 1 \geq 0 \Rightarrow r \sin n \geq 1 \Rightarrow \sin n \geq \frac{1}{r} \quad (1-)$$

$$D_f = \left[k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6}\right]$$

$$y = \sqrt{\cos n - 1} \quad \cos n - 1 \geq 0 \Rightarrow \cos n \geq 1 \Rightarrow D_f = \{k\pi\} \quad (1-)$$

$$\cos y = |n| - r \quad -1 \leq |n| - r \leq 1 \quad D_f = [-r, -r] \cup [r, r] \quad (1-)$$

$$\begin{aligned} -1 \leq |n| - r &\Rightarrow |n| \geq r - 1 \Rightarrow n \geq r - 1 \text{ or } n \leq -r + 1 \\ 1 \leq |n| - r &\Rightarrow |n| \leq r + 1 \Rightarrow -r - 1 \leq n \leq r + 1 \end{aligned}$$

$$y = \arcsin(n^r + r n + 1) \quad -1 \leq n^r + r n + 1 \leq 1 \quad (1-)$$

$$-1 \leq n^r + r n + 1 \Rightarrow 0 \leq n^r + r n + r \Rightarrow 0 \leq (n + r)(n + 1) \Rightarrow -1 \leq n \leq -r$$

$$n^r + r n + 1 \leq 1 \Rightarrow n^r + r n \leq 0 \Rightarrow n(n + r) \leq 0 \Rightarrow n \leq -r$$

$$D_f = [-r, 0]$$

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$$y = \sqrt{r - \log_r(n-r)} \Rightarrow (n-r) > 0 \Rightarrow n > r$$

$$r - \log_r(n-r) > 0 \Rightarrow n-r \leq 9 \Rightarrow n \leq 11$$

$$\left. \begin{array}{l} n < 11 \\ n \leq 11 \end{array} \right\} D_f = (r, 11] \quad (الف - ٨)$$

$$y = \log(n^r - n) \quad n^r - n > 0 \Rightarrow n(n-1)(n+1) > 0 \Rightarrow D_f = (-1, 0) \cup (1, +\infty)$$

$$\begin{array}{c} -1 \quad 0 \quad 1 \\ | \quad | \quad | \\ - \quad + \quad - \quad + \end{array}$$

$$y = \frac{r}{r^n + 1} \quad r^n \neq -1 \Rightarrow D_f = \mathbb{R} \quad (الف - ٩)$$

$$y = \frac{r}{r^n - 1} \quad r^n - 1 \neq 0 \Rightarrow r^n \neq 1 \Rightarrow n \neq 0 \Rightarrow D_f = \mathbb{R} - \{0\}$$

$$y = \frac{r}{r^n - r} \quad r^n - r \neq 0 \Rightarrow r^n \neq r \Rightarrow D_f = \mathbb{R} - \log_r(r) \quad (ج)$$

$$y = \frac{r}{r^n - r} \quad r^n - r \neq 0 \Rightarrow r^n \neq r \Rightarrow D_f = \mathbb{R} - \log_r(r) \quad (د)$$

$$y = (r^{n+1})! \quad r^{n+1} \geq 0 \Rightarrow r^n \geq -1 \Rightarrow n \geq -\frac{1}{r} \Rightarrow D_f = [-\frac{1}{r}, +\infty) \quad (الف - ١٠)$$

$$y = \left(\frac{r^{n+1} - r}{r^{n+1} - a} \right)! \quad \frac{r^{n+1} - r}{r^{n+1} - a} > 0 \Rightarrow \frac{r^{n+1} - r}{r^{n+1} - a} < 1 \Rightarrow n \leq \frac{r}{r-1}$$

$$r^{n+1} - a \neq 0 \Rightarrow r^{n+1} \neq a \Rightarrow n \neq \frac{\log_r a}{r-1}$$

$$D_f = (-\infty, \frac{r}{r-1}] \cup (\frac{\log_r a}{r-1}, +\infty)$$

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