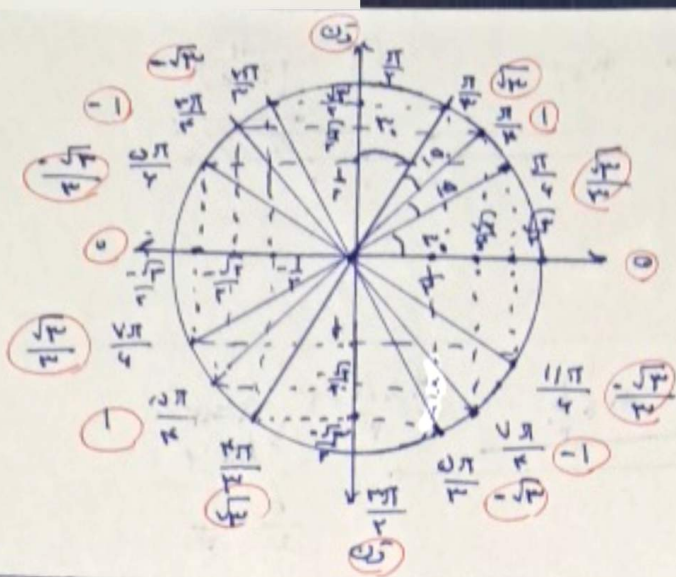


تکلیف ۲. برایان اصغری و کاندوم ب. آ



$$\sin \frac{\pi}{4} + \cos \pi + r \sin \frac{5\pi}{4} = \frac{1}{r} + (-1) + r(-1) = \frac{-2}{r}$$

$$-\cos \frac{3\pi}{4} + \sin \frac{4\pi}{3} - r \sin \frac{5\pi}{4} = -(-\frac{\sqrt{2}}{2}) + (-\frac{\sqrt{3}}{2}) - r(-\frac{\sqrt{2}}{2}) = \frac{\sqrt{2}r}{r}$$

$$\cot \frac{\pi}{4} + r \cot \frac{4\pi}{3} - r \tan \frac{5\pi}{4} = -\frac{\sqrt{3}}{r} + r(\frac{\sqrt{3}}{r}) - r(-\frac{\sqrt{3}}{r}) = \frac{r\sqrt{3}}{r}$$

$$\cos(\sin \pi) + \sin(\pi \cos \frac{\pi}{4}) = 1 + \sin \frac{\pi}{4} = r$$

در مورد صحتی که
 $a^r + r^a = r^a + a^r \rightarrow a^r + a - r = \dots \rightarrow \begin{matrix} 1 \\ -r \end{matrix} (a > 0) \rightarrow a = 1$
 $f(1) = a$

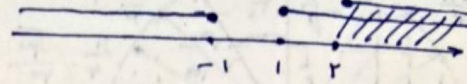
$$f(n) = \begin{cases} n^r + r^n & n \geq 1 \\ (r^{n+1}) & \\ r^{n+1} & n \leq 1 \end{cases}$$

نقطه طاقی
 $r^{n+1} - b \rightarrow a \leq -r$
 $n \geq 1 \Rightarrow 1 - b = a + (-r)^{n+1} r$
 $\rightarrow a + b = r^2$
 $|a+1| \geq r$
 $1 + a \leq -r \quad n \leq -r$

الف) $n^3 - r n^2 \neq 0 \Rightarrow n^2(n-r) \quad D_f = \mathbb{R} - \{0, r\}$

ب) $\frac{1}{r^{n+1} + r^{n+2} + r^{n+3}} \xrightarrow{(-r) \text{ در دو سمتی که}} (r(-1) + r(r) - r + r) \frac{r^n}{r^{n+1}} / r^{n+1} + a r^r = r^{n+1} \Rightarrow a = 0$
 $r^{n+1} + r^{n+2} + r^{n+3} = (n+r)(r^{n+1} + a n + r)$
 $\rightarrow \frac{1}{(n+r)(r^{n+1} + r)} \quad D_f = \mathbb{R} - \{-r\}$

الف) $x^2 - 1 \geq 0 \implies x \geq 1 \text{ or } x \leq -1$ $\textcircled{1}$ $x - 2 \geq 0 \implies x \geq 2$ $Df = [2, \infty)$

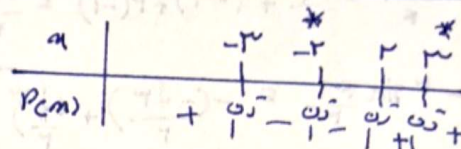


ب) $4 - 3x \geq 0 \implies x \leq \frac{4}{3}$
 $4x - 3 \geq 0 \implies x \geq \frac{3}{4}$ $Df = [\frac{3}{4}, \frac{4}{3}]$

$4x - a \geq 0 \implies \frac{a}{4} \leq x$ $b - 3x \geq 0 \implies x \leq \frac{b}{3}$ $\frac{a}{4} = \frac{b}{3} = 2 \implies a = 8, b = 6$
 $\frac{b}{a} = \frac{1}{2}$

الف) $x^2 - 4 = (x-2)(x+2)$ $-2, 2$

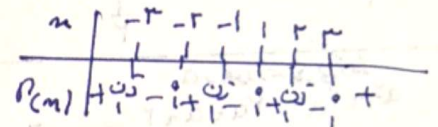
ب) $x^2 - 4 = (x-2)(x+2)$ $\pm 2, \pm 2$



$Df = (-\infty, -2) \cup (2, \infty) - \{2\}$

الف) $x^2 - 4 = (x-2)(x+2)$ $-2, 2$

ب) $x^2 - 4 = (x-2)(x+2)$ $\pm 2, \pm 2$



$Df = (-\infty, -2) \cup [-2, -1) \cup [1, 2) \cup [2, \infty)$

الف) $[x] \geq 2 \implies x \in [2, \infty) \implies Df = [2, \infty)$

ب) $2[x] - 4 \geq 0 \implies [x] \geq 2 \implies x \in [2, \infty) \implies Df = [2, \infty)$

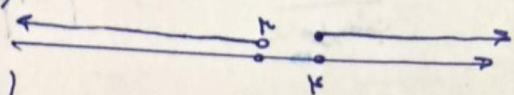
الف) $\frac{x+1}{|x-3|} \geq 0$ $x = -1$ $x = 3$

$Df = [-1, 3] - \{3\}$

$\frac{4-x}{x^2+x+2} \geq 0$ $x = 4$ $x = -2, -1$

ب) $[x] - 2 \geq 0 \implies [x] \geq 2 \implies x \in [2, \infty)$

$2[x] \geq 0 \implies [x] \leq 0 \implies x \in (-\infty, 0)$



$Df = \emptyset$ ، فقدت المنطق