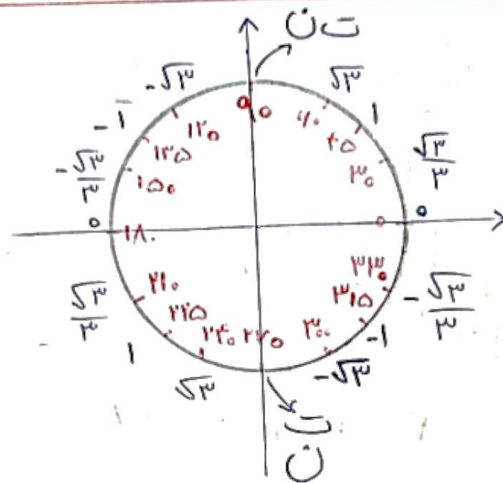


مقطع: یازدهم
B

کتاب شماره: ۲

نام و نام خانوادگی: پارسا ضیائی



- 1

الف) $\sin \frac{\pi}{4} + \cos \pi + 2 \tan \frac{\pi}{4} = \frac{1}{\sqrt{2}} + (-1) + 2(-1) = -\frac{3}{\sqrt{2}} + \frac{1}{\sqrt{2}} = -\frac{2}{\sqrt{2}}$

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

ج) $\cot \frac{\pi}{3} + 2 \cot \frac{\pi}{4} - 2 \tan \frac{5\pi}{4} = \frac{\sqrt{3}}{3} + 2(1) - 2(-\frac{\sqrt{3}}{3}) = \frac{4\sqrt{3}}{3}$

د) $\cos(\sin \pi) + \sin(\pi \cos \frac{\pi}{3}) = \cos(0) + \sin(\frac{\pi}{3}) = 1 + 1 = 2$

$x^2 + 4x = 2x + a + 2$ if $x = a \rightarrow a^2 + 4a = 2a + a + 2 \rightarrow a^2 + a - 2 = 0$
 $\rightarrow a = \begin{cases} 1 \\ -2 \end{cases} \rightarrow f(1) = 1^2 + 4 = 5$

$|x+1| \geq 2 \rightarrow \begin{cases} x+1 \geq 2 \rightarrow x \geq 1 \\ x+1 \leq -2 \rightarrow x \leq -3 \end{cases}$

$\rightarrow 2x^2 - b = a + 2x$ if $x = -3 \rightarrow 2(-3)^2 - b = a + 2(-3) \rightarrow 18 - b = a - 6 \Rightarrow a + b = 24$

الف) $y = \frac{1}{x^2 - 4x^2} \rightarrow x^2(x-4) \neq 0 \rightarrow x = \mathbb{R} - \{0, 4\}$

ب) $y = \frac{1}{2x^2 + 2x^2 + 2x + 4} \rightarrow 2(x^2 + x^2 + x + 2) \neq 0 \rightarrow 2(x(x+1) + 2(x+1)) \neq 0 \Rightarrow 2(x+1)(x+2) \neq 0 \rightarrow x = \mathbb{R} - \{-1, -2\}$

الف) $y = \sqrt{x^2 - 1} + \sqrt{x - 2} \rightarrow \begin{cases} x^2 - 1 \geq 0 \rightarrow x = \mathbb{R} - (-1, 1) \\ x - 2 \geq 0 \rightarrow x \geq 2 \end{cases} \rightarrow D_f = [2, +\infty)$

ب) $y = \frac{\sqrt{4-3x}}{\sqrt{4x-3}} \rightarrow \begin{cases} 4-3x \geq 0 \rightarrow 4 \geq 3x \rightarrow 2 \geq x \\ 4x-3 \geq 0 \rightarrow 4x \geq 3 \rightarrow x \geq \frac{3}{4} \end{cases} \Rightarrow D_f = (\frac{3}{4}, 2]$

$4x - a \geq 0 \rightarrow x \geq \frac{a}{4}$ $b - 3x \geq 0 \rightarrow \frac{b}{3} \geq x$ $\frac{b}{3} = \frac{a}{4} = 2 \rightarrow b = 6, a = 12$ $\frac{b}{a} = \frac{6}{12} = \frac{1}{2}$

الف) $y = \sqrt{\frac{x^2 - x - 4}{x^2 - 13x + 12}} = \sqrt{\frac{(x-4)(x+3)}{(x-12)(x-1)}} = \sqrt{\frac{(x-3)(x+2)}{(x+2)(x-2)(x-1)(x+1)}}$

$$+\frac{-r}{0} - \frac{-r^*}{0} - \frac{r}{0} + \frac{r^*}{0} + \rightarrow D_f = (-\infty, -r) \cup (r, r^*) \cup (r^*, +\infty)$$

$$y = \sqrt{\frac{x^r - rx^r - \Delta x + y}{x^r + rx^r - \Delta x - y}} \xrightarrow{1-r-\Delta+y=0} \frac{x^r - rx^r - \Delta x + y}{-x^r + x^r} \frac{x-1}{x^r - x - y}$$

$$\xrightarrow{1-\Delta=r-y} \frac{x^r + rx^r - \Delta x - y}{-x^r - x^r} \frac{x+1}{x^r + x - y}$$

$$\Rightarrow y = \sqrt{\frac{(x-r)/(x+r)}{(x-r)(x+r)}} \rightarrow + \frac{r-r}{0} - \frac{r}{0} + \frac{r}{0} - \frac{r}{0} + \frac{x^r - \Delta x}{-x^r - m}$$

$$\Rightarrow y = \sqrt{\frac{(x-1)(x+1)}{(x-1)(x+1)}} \rightarrow \frac{-1 \quad -1 \quad 1 \quad 1}{\underbrace{+}_{\text{O}} \quad \underbrace{-}_{\text{O}} \quad \underbrace{+}_{\text{O}} \quad \underbrace{-}_{\text{O}} \quad \underbrace{+}_{\text{O}}}$$

$$Df = (-\infty, -r) \cup [-r, r) \cup [r, +\infty) \quad -4r - 4 \quad (n+r)(n-r)$$

الف) $y = \sqrt{r[x] - f} \rightarrow r[x] - f \geq 0 \rightarrow r[x] \geq f \rightarrow [x] \geq r$

$$\Rightarrow (n \geq 2)$$

$$b) y = \sqrt{r[x] - \omega} \rightarrow r[x] - \omega \geq 0 \rightarrow r[x] \geq \omega \rightarrow [x] \geq r, \omega$$

$$\Rightarrow (x \geq r)$$

الف) $y = \sqrt{\frac{x+1}{|x-3|}} + \sqrt{\frac{y-x}{x^2+2x+2}} \rightarrow \frac{y}{+ \phi -}$
 $\frac{-1}{-\phi +} \rightarrow x = [-1, +\infty) - \{3\}$
 $\Delta \leq 0$
 $x = (-\infty, y] \Rightarrow D_f = [-1, y] - \{3\}$

$y = \sqrt{[x] - r} + \sqrt{r - [x]} \rightarrow Df = \emptyset$
 $[x] \geq r \rightarrow x \geq r \quad \searrow \quad r \geq [x] \rightarrow x \leq r$