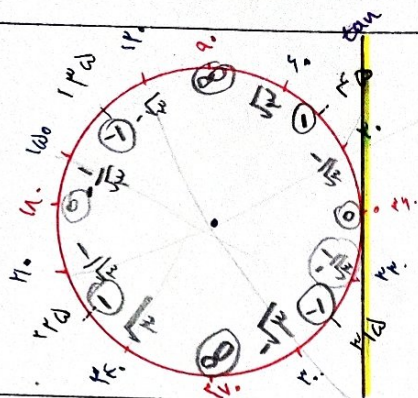


نام و نام خانوادگی: پوربهرامی پاسخنامه تشریحی تکلیف شماره ۲ کلاس: یازدهم دستان B



۱

الف) $\sin \frac{\pi}{6} + \cos \pi + 2 \tan \frac{\pi}{4} \rightarrow \frac{1}{2} + (-1) + 2 \times 1 = \boxed{-\frac{1}{2}}$

ب) $-\cos \frac{5\pi}{6} + \sin \frac{\pi}{3} - 3 \sin \frac{\pi}{6} \rightarrow +\frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} - \frac{3}{2} = \boxed{\frac{\sqrt{3}-3}{2}}$

ج) $\cot \frac{\pi}{4} + 3 \cot \frac{\pi}{3} - 2 \tan \frac{5\pi}{6} \rightarrow -\frac{1}{\sqrt{3}} + 3 \times \frac{1}{\sqrt{3}} + 2 \times \frac{1}{\sqrt{3}} = \boxed{\frac{5}{\sqrt{3}}}$

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

۲

$(x+2)(x-1)$
 $x^2 + 2x = 2x + x + 2 \rightarrow x^2 + x - 2 = 0 \rightarrow x = -1, 2 \rightarrow f(1) + f(2) = \boxed{5}$

۳

$|x+1| \geq 2$

$x+1 \geq 2 \rightarrow x \geq 1$

$x+1 \leq -2 \rightarrow x \leq -3$

$-3 \leq x \leq -1 \rightarrow a+2x \xrightarrow{x=-3} a-6$
 $a-6 = a-6$

۴

$y = \frac{1}{x^3 - 2x^2} \rightarrow \frac{x^3 - 2x^2}{x^2(x-2)} \rightarrow D_f = \mathbb{R} - \{0, 2\}$

$y = \frac{1}{(2x^3 + 5x^2)(2x+5)} \rightarrow \frac{1}{2x^2(x+2) + 2(x+2)} \rightarrow \frac{1}{(x+2)(2x^2+4)} \xrightarrow{x=-2} \text{undefined}$

۵

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

ب) $y = \frac{\sqrt{5-3x}}{\sqrt{x-3}} \rightarrow \begin{cases} 5-3x \geq 0 \\ x-3 > 0 \end{cases} \rightarrow \begin{cases} x \leq \frac{5}{3} \\ x > 3 \end{cases} \rightarrow D = \left(\frac{5}{3}, 3\right)$

$y = \sqrt{5x-a} + \sqrt{b-3x}$
 $5x-a \geq 0 \rightarrow x \geq \frac{a}{5}$
 $b-3x \geq 0 \rightarrow x \leq \frac{b}{3}$
 $\frac{a}{5} = \frac{b}{3} = 2 \rightarrow a=10, b=6$
 $\frac{b}{a} = \frac{6}{10} = \frac{3}{5}$

الف) $\frac{x^2-x-6}{x^2-13x^2+36} \rightarrow \frac{(x-3)(x+2)}{(x-4)(x-9)}$
 $\frac{x^2-2x^2-6x+6}{x^2+2x^2-6x-6} \rightarrow \frac{(x-1)(x-6)}{(x+1)(x-3)}$
 $D_f = (-\infty, -1) \cup (1, 3) \cup (3, \infty)$
 $D_f = (-\infty, -1) \cup (-1, 1) \cup (1, 3) \cup (3, \infty)$

$y = \sqrt{2[x]-4} \rightarrow 2[x]-4 \geq 0 \rightarrow [x] \geq 2 \rightarrow D_f = [2, \infty)$

$y = \sqrt{2[x]-5} \rightarrow 2[x]-5 \geq 0 \rightarrow [x] \geq \frac{5}{2} \rightarrow D_f = \left[\frac{5}{2}, \infty\right)$

الف) $\sqrt{\frac{x+1}{|x-2|}} + \sqrt{\frac{5-x}{x^2+2x+1}} \rightarrow \begin{cases} \frac{x+1}{|x-2|} \geq 0 \\ \frac{5-x}{x^2+2x+1} \geq 0 \end{cases}$
 $x \neq 2$
 $D_f = [-1, 5]$

ب) $\sqrt{[x]-4} + \sqrt{4-[x]} \rightarrow [x] \geq 4 \rightarrow D_f = [4, \infty)$
 $4-[x] \geq 0 \rightarrow [x] \leq 4 \rightarrow D_f = (-\infty, 4]$
 $D_f = \emptyset$