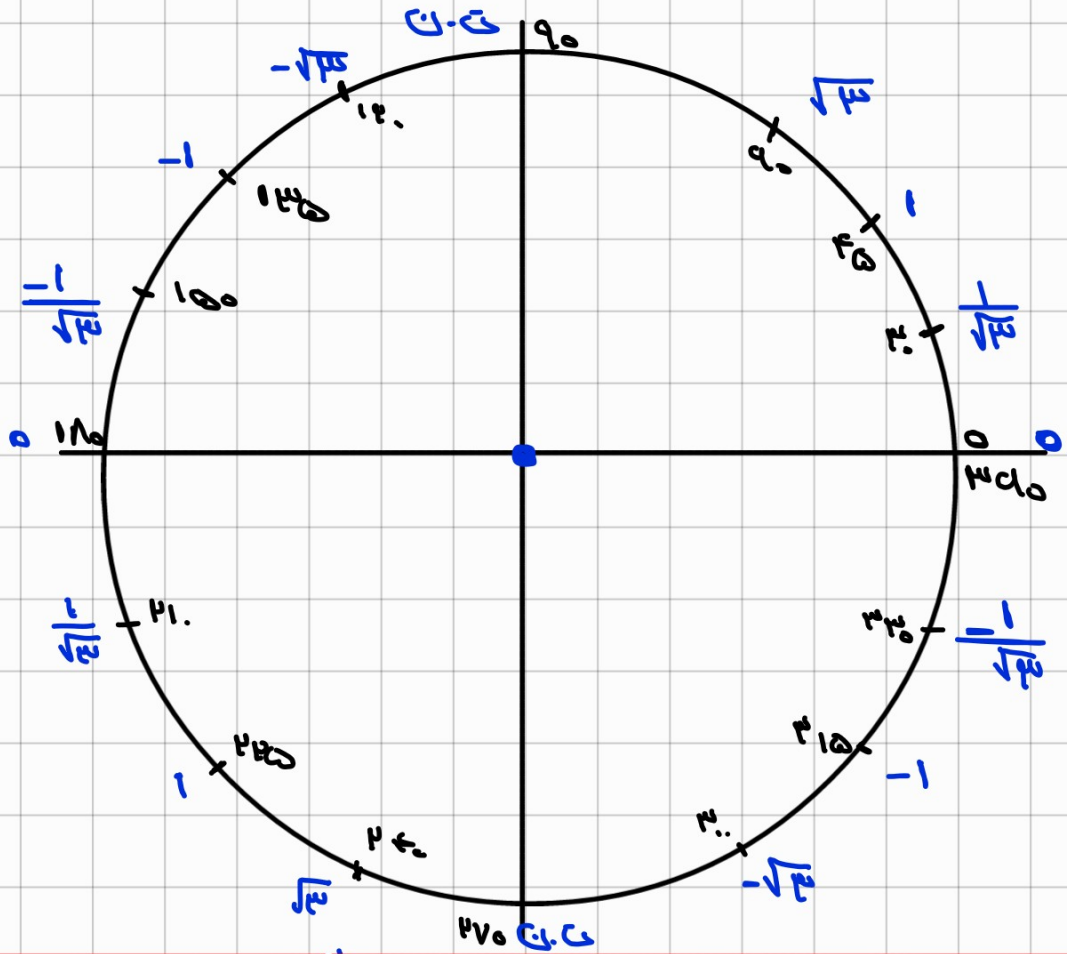




$$\text{الف) } \frac{\sin \frac{\pi}{4}}{1} + \frac{\cos \frac{\pi}{4}}{-1} + \frac{1 \pm \sin \frac{\pi}{4}}{1} = \frac{1}{1} - \frac{1}{-1} = \frac{1}{1} - 2 = -\frac{1}{1}$$

$$\text{ب) } -\frac{\cos \frac{\pi}{4}}{1} + \frac{\sin \frac{\pi}{4}}{1} - \frac{1 \sin \frac{\pi}{4}}{1} = -\left(1 + \frac{1}{1}\right) - \frac{1}{1} = -\frac{2}{1} - \frac{1}{1} = -\frac{3}{1}$$

$$\text{ج) } \frac{\cos \frac{\pi}{4}}{1} + \frac{1 \cos \frac{\pi}{4}}{1} - \frac{1 \tan \frac{\pi}{4}}{1} = \frac{1}{1} + \frac{1}{1} - \frac{1}{1} = \frac{1}{1} + \frac{1}{1} - \frac{1}{1} = \frac{1}{1}$$

$$f(x) = \begin{cases} x^2 + Fx & x \geq a \\ x + a + F & x < a \end{cases}$$

$$a^2 + Fd = Fd + F$$

$$a^2 + a - F = 0 \rightarrow (a + F, a - 1)$$

$$(a = -F, 1) \rightarrow a > 0 \rightarrow -F \text{ و } 1$$

$$x = a \rightarrow a^2 + Fd$$

$$x = a \rightarrow Fd + F$$

$$a = 1 \rightarrow \begin{cases} x^2 + Fx & x \geq 1 \\ x + F & x < 1 \end{cases}$$

$$\rightarrow f(1) = 0$$

$$f(x) = \begin{cases} x^p - b & |x+1| \geq p \\ a + px & -p \leq x \leq -1 \end{cases}$$

$$|x+1| \geq p \rightarrow x+1 \geq p \rightarrow x \geq p-1$$

$$x+1 \leq -p \rightarrow x \leq -p-1$$

$$x = -p \rightarrow px - b$$

$$x = -p \rightarrow a - p \rightarrow a - b = a - p \rightarrow a + b = p^2$$

$$f(x) = \frac{1}{x^p - px^p} \rightarrow x^p - px^p \neq 0 \rightarrow x^p(x - p) \neq 0$$

$$x \neq 0, x \neq p$$

$$D_f = \{0, p\}$$

$$g(x) = \frac{1}{px^p + px^p + px + p} \rightarrow px^p(x + p) + p(x + p)$$

$$(x + p)(px^p + p) \neq 0 \rightarrow x = -p$$

$$px^p + p \rightarrow \text{مشتق}$$

$$D_g = \mathbb{R} - \{-p\}$$

$$f(x) = \sqrt{x^p - 1} + \sqrt{x - p} \rightarrow x^p - 1 \geq 0 \rightarrow x^p \geq 1$$

$$x \geq 1 \text{ or } x \leq -1$$

$$x - p \geq 0 \rightarrow x \geq p$$

$$[-p, +\infty)$$

$$g(x) = \frac{\sqrt{a - px}}{\sqrt{cx - p}}$$

$$a - px \geq 0 \rightarrow a \geq px \rightarrow p \geq x$$

$$cx - p \geq 0 \rightarrow cx \geq p \rightarrow x \geq \frac{p}{c}$$

$$[\frac{p}{c}, p]$$

$$y = \sqrt{ax - a} + \sqrt{b - px}$$

$$ax - a \geq 0 \rightarrow ax \geq a \rightarrow x \geq \frac{a}{p}$$

$$b - px \geq 0 \rightarrow b \geq px \rightarrow x \leq \frac{b}{p}$$

$$\frac{b}{p} = \frac{a}{c} \rightarrow cb = pa$$

$$\frac{b}{a} = \frac{1}{p}$$

$$f(x) = \sqrt{\frac{x^p - x - c}{x^p - px^p + px}} \rightarrow \frac{x^p - x - c}{x^p - px^p + px} \geq 0$$

$$x^p - x - 4 \rightarrow (x - p)(x + p) \rightarrow x = p, -p$$

$$x^p - (px^p + p^2) \rightarrow x^p = 2 \rightarrow (2 - p, 2 + p) \rightarrow x^p = p, x = \pm p$$

$$x^p = 4 \rightarrow x = \pm 2$$

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

$$(-\infty, -p) \cup (p, p) \cup (p, +\infty)$$

ج ١

$$\sqrt{\frac{x^p - px^p - 2x + 4}{x^p + px^p - 2x - 4}}$$

$$x^p = p, -p$$

$$(x - p)(x + p)(x - 1) \leftarrow \lim_{x \rightarrow 0}$$

$$(x + p)(x - p)(x + 1) \leftarrow \lim_{x \rightarrow 0}$$

$$-p, p, -1, 1, p, p$$

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

$$\frac{x^p - px^p - 2x + 4}{x^p + px^p - 2x - 4} \Big| \frac{x-1}{x^p - x - 4}$$

$$-x^p - x^p$$

$$-x^p - 2x + 4$$

$$-x^p + x$$

$$-4x + 4$$

$$-4x + 4$$

$$0$$

$$x^p + px^p - 2x - 4 \Big| \frac{x+1}{x^p + x - 4}$$

$$-x^p + x^p$$

$$x^p - 2x - 4$$

$$-x^p + x$$

$$-4x - 4$$

$$-4x - 4$$

$$0$$

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

$$\text{الف } \sqrt{f(x)} - f$$

$$f(x) - f \geq 0 \rightarrow [x] \geq p \rightarrow x \geq p \rightarrow [p, +\infty)$$

$$\text{ب } \sqrt{f(x)} - 0$$

$$x \geq p \rightarrow [p, +\infty)$$

$$f(x) > 0 \rightarrow [x] \geq \frac{p}{2} \rightarrow [x] \geq p \rightarrow [p, +\infty)$$

$$\text{الف } y = \sqrt{\frac{x+1}{|x-p|}} + \sqrt{\frac{4-x}{x^p + px^p + f}}$$

$$\frac{x+1}{|x-p|} \geq 0$$

$$-1 \leq x - p \neq 0 \rightarrow x \neq p$$

$$(-\infty, -1) \cup (p, +\infty)$$

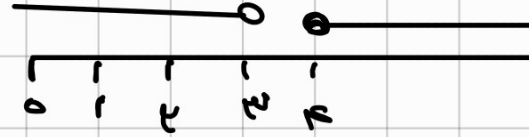
$$\frac{4-x}{x^2+2x+5} \geq 0 \rightarrow 4-x \geq 0 \rightarrow 4 \geq x \rightarrow (-\infty, 4] \\ x^2+2x+5 < 0 \rightarrow \Delta < 0 \rightarrow b^2-4ac \rightarrow 4-20 < 0 \rightarrow \text{مطلوب}$$


$$(-\infty, -1] \cup [3, 4]$$

ج، $\sqrt{[x]-5} + \sqrt{4-[x]}$

$$[x]-5 \geq 0 \rightarrow [x] \geq 5 \rightarrow x \geq 5 \rightarrow [5, +\infty)$$

$$4-[x] \geq 0 \rightarrow 4 \geq [x] \rightarrow x \leq 4 \rightarrow x < 5 \rightarrow (-\infty, 5)$$



$$\rightarrow \text{المطلوب} \rightarrow D_f = \emptyset$$