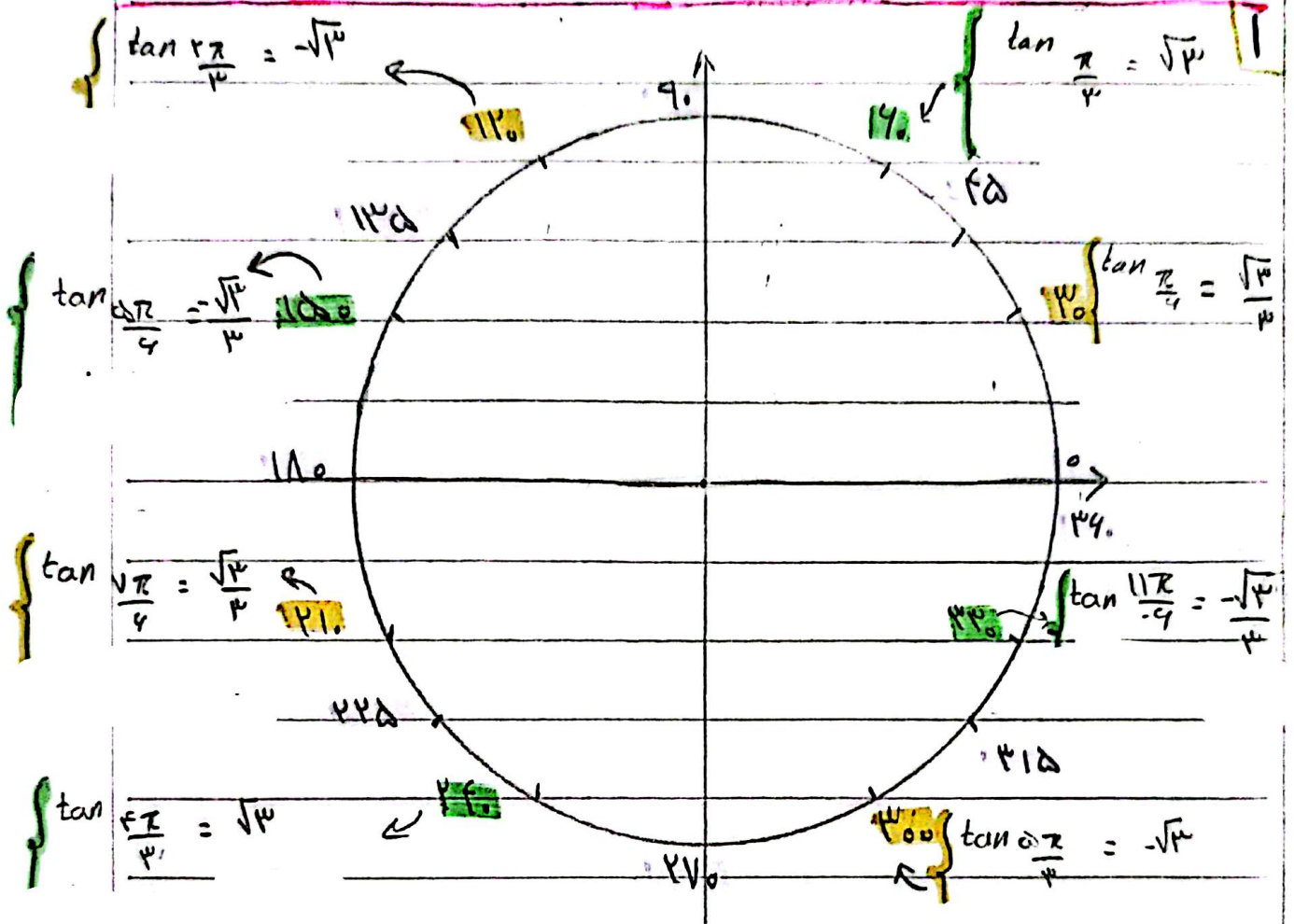


پرنيان باقري / پاسفنامہ تشریحي تالیف ۲ / یار دہم دفتر A



$$\theta = 0^\circ \rightarrow \left\{ \tan \frac{0\pi}{4} = 0 \right\} \quad \theta = 90^\circ \rightarrow \left\{ \tan \frac{\pi}{4} = \infty \right\}$$

$$\theta = 180^\circ \rightarrow \left\{ \tan \pi = 0 \right\} \quad \theta = 270^\circ \rightarrow \left\{ \tan \frac{3\pi}{4} = \infty \right\}$$

$$\theta = 45^\circ \rightarrow \left\{ \tan \frac{\pi}{4} = 1 \right\} \quad \theta = 135^\circ \rightarrow \left\{ \tan \frac{3\pi}{4} = -1 \right\}$$

$$\theta = 225^\circ \rightarrow \left\{ \tan \frac{5\pi}{4} = 1 \right\} \quad \theta = 315^\circ \rightarrow \left\{ \tan \frac{7\pi}{4} = -1 \right\}$$

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

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

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

$$\text{د) } \cos \left( \sin \frac{\pi}{2} \right) + \sin \left( \pi \cos \frac{\pi}{2} \right) = 1$$

$$a^2 + ka = ka + k$$

$$a^2 + a - k = 0 \rightarrow a = \frac{1}{2} \left( -1 \pm \sqrt{1 + 4k} \right)$$

$$f_1 = -1 + k = a$$

$$f_x = \begin{cases} kx^2 - b & x > 1, \quad x < -k \\ a + kx & -k < x < 1 \end{cases}$$

$$x = -k \rightarrow a - k = 1 - b \rightarrow a + b = k$$

الف)  $y = \frac{1}{x^3 - x^2} = \frac{1}{x^2(x-1)}$

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

ب)  $y = \frac{1}{x^3 + x^2 + x + 1} = \frac{1}{(1+x^2)(x+1)}$

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

$x^2 - 1 > 0 \rightarrow \frac{1}{x-1} > \frac{1}{x+1}$

الف)  $\sqrt{x^2-1} + \sqrt{x-2}$

$(-\infty, -1] \cup [1, +\infty) \cap x > 2 \Rightarrow D_f = [2, +\infty)$

ب)  $y = \frac{\sqrt{4-x^2}}{\sqrt{4x-3}}$

$4-x^2 > 0 \rightarrow x < 2$

$4x-3 > 0 \rightarrow x > \frac{3}{4}$

$\frac{3}{4} < x < 2$

$\begin{cases} 4x-a > 0 \rightarrow x > \frac{a}{4} \\ b-3x > 0 \rightarrow x < \frac{b}{3} \end{cases}$

$\Rightarrow \frac{a}{4} = \frac{b}{3} = 2$

$a=12, b=4 \Rightarrow \frac{b}{a} = \frac{1}{3}$

$$\text{الف) } \sqrt{\frac{x^2 - x - 4}{x^2 - 13x^2 + 34}} = \sqrt{\frac{(x-2)(x+2)}{(x-2)(x+2)(x+3)(x-3)}}$$

$$\begin{array}{c|c|c|c|c} x & -2 & 2 & -3 & 3 \\ \hline + & - & - & + & + \end{array}$$

$$D_f = (-\infty, -2) \cup (2, 3) \cup (3, +\infty)$$

$$\text{ب) } \sqrt{\frac{x^3 - 2x^2 - 5x + 4}{x^3 + 2x^2 - 5x - 4}} = \sqrt{\frac{(x-1)(x-3)(x+2)}{(x+1)(x+3)(x-2)}}$$

$$\begin{array}{c|c|c|c|c|c|c} x & -1 & 1 & 2 & -2 & 3 & -3 \\ \hline + & - & + & - & + & - & + \end{array}$$

$$D_f = (-\infty, -1) \cup [-2, -1) \cup [1, 2) \cup [3, +\infty)$$

$$\text{الف) } \sqrt{2[x] - 4} \rightarrow [x] \geq 2 \rightarrow x \geq 2$$

$$D_f = [2, +\infty)$$

$$\text{ب) } \sqrt{2[x] - 5} \rightarrow [x] \geq \frac{5}{2} \rightarrow x \geq \frac{5}{2}$$

$$D_f = [\frac{5}{2}, +\infty)$$

$$\text{الف) } \sqrt{\frac{x+1}{|x-3|}} + \sqrt{\frac{4-x}{(x+2)^2}}$$

$$\begin{array}{c|c} -1 & 3 \\ \hline - & + \end{array}$$

$$\begin{array}{c|c} -2 & 4 \\ \hline + & - \end{array}$$

$$D_f = [-1, 3) \cup (4, +\infty)$$

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$$b) \dots \sqrt{[a] - f} + \sqrt{r - [a]}$$

$$[a] > f$$

$$[a] < r$$

$$\Rightarrow D_f = \emptyset$$

$$a > f$$

$$a < r$$