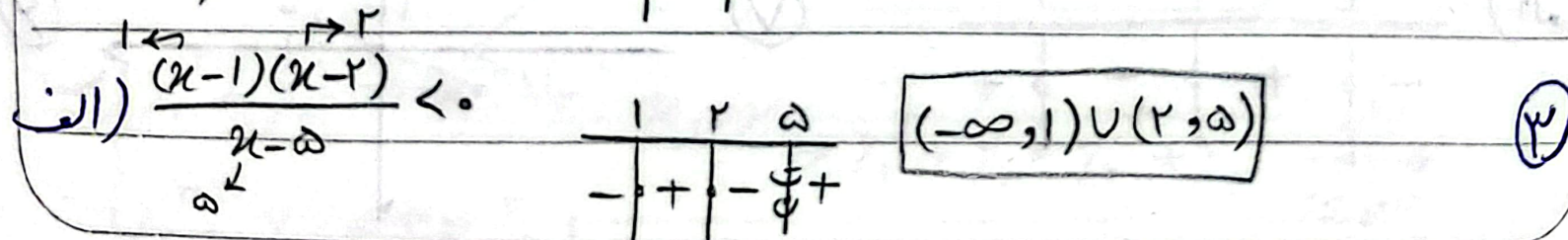
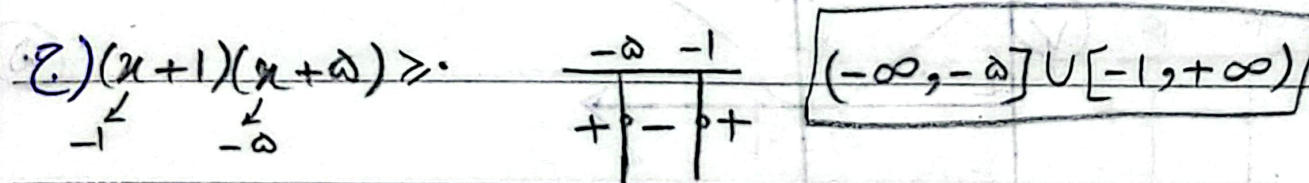
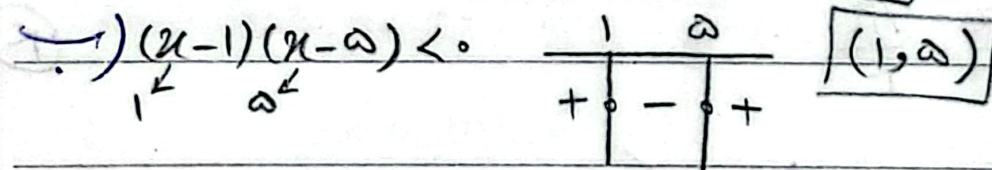
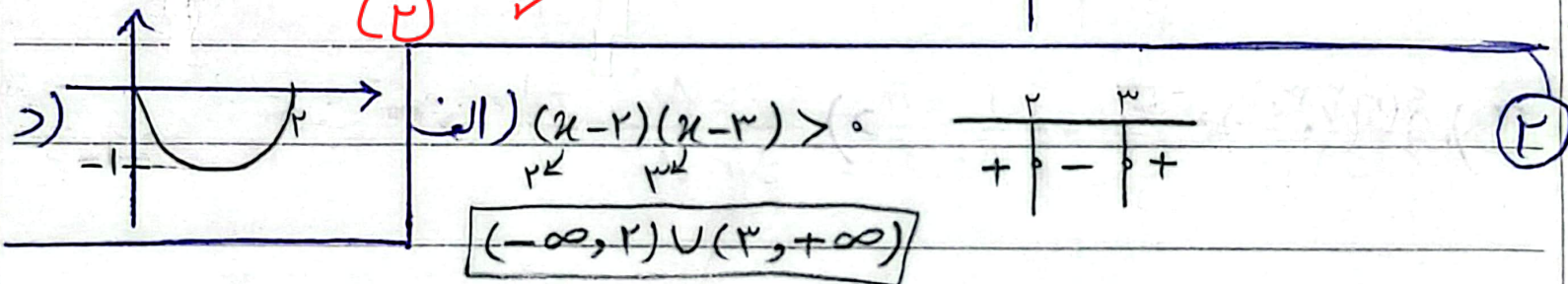
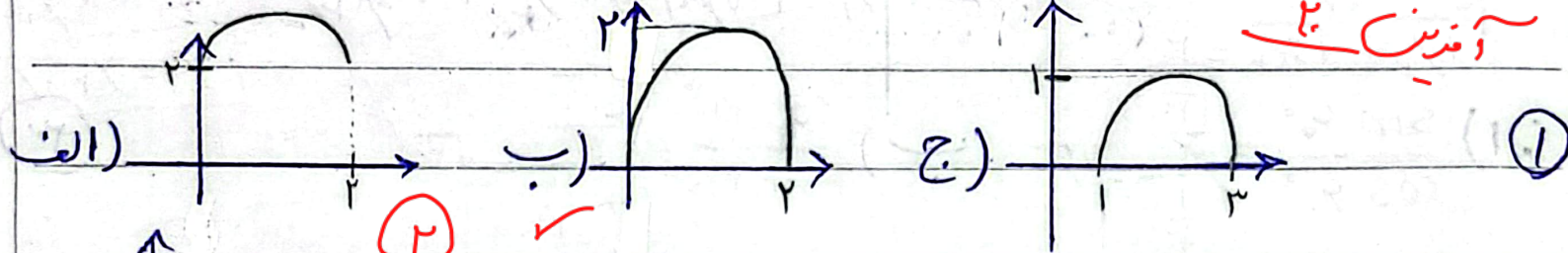


(ب. نام خا) (تعلیف شماره ۵)

فاصله ماسی

سؤالات ۲



ب) $\frac{(x+1)(x-1)}{(x-1)(x-5)} \geq 0$ (۲) ✓

رشته زائد $\rightarrow x^2 - 4x + 1 < 0$

نقطه بحرانی: $-1, 5$

علامت: $+, -, +$

حاصل: $(-\infty, -1] \cup (5, +\infty)$

الف) $\frac{(x-1)(x^2+x+1)}{x(x^2-1)} \geq 0$ (۳) ✓

نقطه بحرانی: $-1, 0, 1$

علامت: $+, -, +$

حاصل: $(-\infty, -1) \cup (0, 1) \cup (1, +\infty) = D_f$

ب) $\frac{(x+4)(x-4)}{(x-4)(x-1)} \geq 0$ (۴) ✓

نقطه بحرانی: $-4, 1, 4$

علامت: $+, -, +$

حاصل: $(-\infty, -4] \cup (1, 4) \cup (4, +\infty) = D_f$

الف) $4 - \sqrt{2-x} \geq 0 \rightarrow \sqrt{2-x} \leq 4 \rightarrow 2-x \leq 16 \rightarrow -x \leq 14 \rightarrow x \geq -14$ (۵)

$2-x \geq 0 \rightarrow x \leq 2$

نقطه بحرانی: $-14, 2$

علامت: $+, -$

حاصل: $[-14, 2] = D_f$

ب) $3 - \sqrt{x-2} \geq 0 \rightarrow \sqrt{x-2} \leq 3 \rightarrow x-2 \leq 9 \rightarrow x \leq 11$ (۶) ✓

$x-2 \geq 0 \rightarrow x \geq 2$

نقطه بحرانی: $2, 11$

علامت: $+, -$

حاصل: $[2, 11] = D_f$

الف) $4 - 2x^2 \geq 0 \rightarrow 2(2-x^2) \geq 0 \rightarrow 2-x^2 \geq 0$ (۷)

نقطه بحرانی: $-\sqrt{2}, \sqrt{2}$

علامت: $+, -$

حاصل: $D_f = [-\sqrt{2}, \sqrt{2}]$

ب) $3|x|-9 \geq 0 \rightarrow 3|x| \geq 9 \rightarrow |x| \geq 3 \rightarrow x \geq 3, x \leq -3$ (۸) ✓

نقطه بحرانی: $-3, 3$

علامت: $+, -$

حاصل: $D_f = (-\infty, -3] \cup [3, +\infty)$

الف) $|x|-3 \neq 0 \rightarrow |x| \neq 3 \rightarrow x \neq \pm 3$ (۹) ✓

حاصل: $D_f = \mathbb{R} - \{\pm 3\}$

ب) $\sqrt{x}-3 \neq 0 \rightarrow \sqrt{x} \neq 3 \rightarrow x \neq 9, x \geq 0$ (۱۰)

حاصل: $D_f = [0, +\infty) - \{9\}$

الف) $2\cos x - 1 \neq 0 \rightarrow 2\cos x \neq 1 \rightarrow \cos x \neq \frac{1}{2} \rightarrow x \neq \frac{\pi}{3}, \frac{5\pi}{3}$ (۱۱)

حاصل: $D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{3}\}$

ب) $2\sin x + 1 \neq 0 \rightarrow 2\sin x \neq -1 \rightarrow \sin x \neq -\frac{1}{2} \rightarrow x \neq \frac{7\pi}{6}, \frac{11\pi}{6}$

حاصل: $D_f = \mathbb{R} - \{2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}\}$

ج) $\frac{\sin x}{\cos x} + 2$ (۱۲) ✓

$\frac{\cos x}{\sin x} - 1$

$\cos x \neq 0 \rightarrow x \neq k\pi + \frac{\pi}{2}$

$\sin x \neq 0 \rightarrow x \neq k\pi$

$\frac{\cos x}{\sin x} - 1 \neq 0 \rightarrow \cos x \neq \sin x \rightarrow x \neq k\pi + \frac{\pi}{4}$

حاصل: $D_f = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{2}, k\pi + \frac{\pi}{4}\}$

$$2) \leftarrow \sin^2 x - \frac{1}{4} \neq 0 \rightarrow \sin^2 x \neq \frac{1}{4} \rightarrow \sin x \neq \pm \frac{1}{2} \rightarrow x \neq k\pi \pm \frac{\pi}{6}$$

$$D_f = \mathbb{R} - \left\{ k\pi \pm \frac{\pi}{6} \right\}$$

9 جواب سؤال 9: $2|x-2| - \frac{1}{x} > 0 \rightarrow 2|x-2| > \frac{1}{x} \rightarrow |x-2| > \frac{1}{x}$ (9)

$$x-2 > +\frac{1}{x} \text{ و } x-2 < -\frac{1}{x} \quad D_f = (-\infty, \frac{1}{x}) \cup (\frac{1}{x} + \infty)$$

$$x > \frac{1}{x} \quad x < \frac{1}{x}$$

(9) ✓

الف) $4-2|x| \geq 0 \rightarrow 2|x| \leq 4 \rightarrow |x| \leq 2 \rightarrow x \leq 2, x \geq -2$ (10)

$$\begin{array}{c} \text{=====} \\ -2 \quad 2 \end{array} \Rightarrow D_f = [-2, 2]$$

(10) ✓

هواره 6+ $\rightarrow$

ب) $\frac{|x|}{|x|} \geq 0 \quad |x| \neq 0 \rightarrow x \neq 0 \quad D_f = \mathbb{R} - \{0\}$

هواره 6+ $\rightarrow$