

نام و نام خانوادگی: کلاس: پاسخنامه تشریحی تکلیف شماره: A

الف) $\frac{(n^3 - 1)n^2 + 31n - 15}{(n-1)} = n^2 - 14n + 15$ صحیح و درست

$= (2n-3)(2n-5) \Rightarrow (2n^3 - 12n^2 + 31n - 15) = (n-1)$

$(2n-3)(2n-5) \neq 0 \Rightarrow n \neq \frac{3}{2}, \frac{5}{2} \Rightarrow D_f = \mathbb{R} - \left\{ \frac{3}{2}, \frac{5}{2} \right\}$

ب) $\frac{(n^3 - n^2 - 8n - 6)}{(n+1)} = n^2 - 2n - 6$ صحیح و درست

$= (n-2)(n+\frac{2}{3}) \Rightarrow (n^3 - n^2 - 8n - 6) = (n+1)(n-2)(n+\frac{2}{3})$

$\neq 0 \Rightarrow n \neq -1, 2, -\frac{2}{3} \Rightarrow D_f = \mathbb{R} - \left\{ -1, 2, -\frac{2}{3} \right\}$

الف) $n - \sqrt{3-2n} \neq 0 \Rightarrow n \neq \sqrt{3-2n} \Rightarrow n^2 \neq 3-2n \Rightarrow n^2 + 2n - 3 \neq 0$
 $\Rightarrow (n+3)(n-1) \neq 0, 3-2n > 0 \Rightarrow 3 > 2n \Rightarrow \frac{3}{2} > n \Rightarrow D_f = (-\infty, \frac{3}{2}] - \left\{ -3, 1 \right\}$

ب) $n - \sqrt{3n-2} \neq 0 \Rightarrow n^2 \neq 3n-2 \Rightarrow n^2 - 3n + 2 \neq 0 \Rightarrow$
 $(n-1)(n-2) \neq 0, 3n-2 \geq 0 \Rightarrow n \geq \frac{2}{3} \Rightarrow D_f = [\frac{2}{3}, +\infty) - \left\{ 1, 2 \right\}$

الف) $2\cos n \neq 1 \Rightarrow D_f = \mathbb{R} - \left\{ 2k\pi + \frac{\pi}{3} \right\}$
 $\Rightarrow \cos n \neq \frac{1}{2} \Rightarrow \sin n \neq \frac{1}{2}$

ج) $\cot n \neq 1 \Rightarrow D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{4}, \frac{k\pi}{2} \right\}$
 $\cot n, \tan n \neq \text{undefined} \Rightarrow \sin n \neq \pm \frac{\sqrt{2}}{2}, D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4} \right\}$

الف) $(n-2)(n-3) > 0 \Rightarrow \frac{1}{n-2} - \frac{1}{n-3} > 0 \Rightarrow D_f = (-\infty, 2) \cup (3, +\infty)$

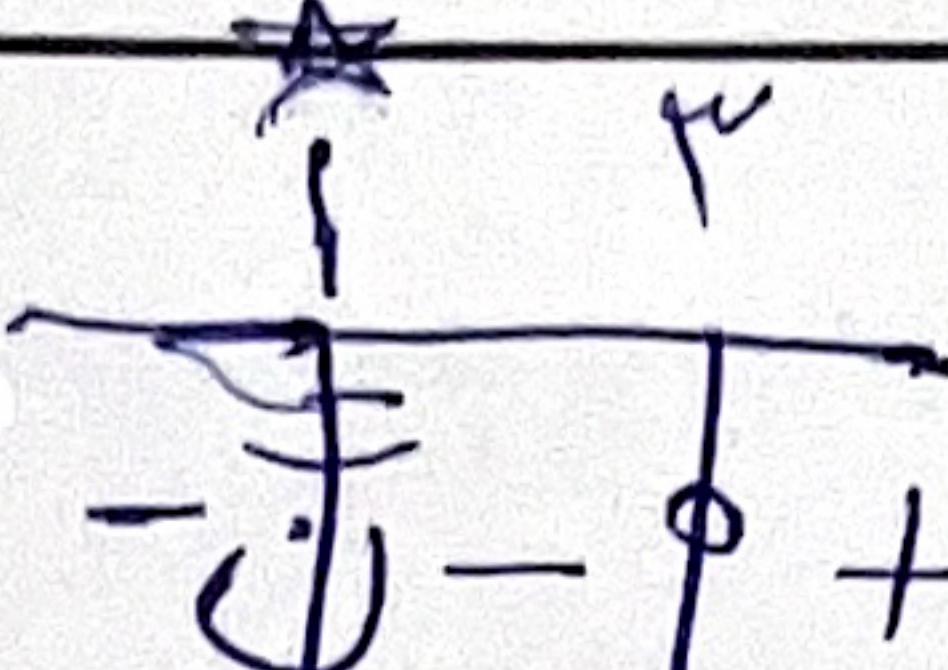
ب) $(n-2)(n-1) < 0 \Rightarrow \frac{1}{n-2} - \frac{1}{n-1} < 0 \Rightarrow D_f = (1, 2)$

ج) $(n+1)(n+4) > 0 \Rightarrow \frac{-1}{n+1} - \frac{-1}{n+4} > 0 \Rightarrow D_f = (-\infty, -4] \cup [-1, +\infty)$

د) $(n-1)(n-4) < 0 \Rightarrow \frac{1}{n-1} - \frac{1}{n-4} < 0 \Rightarrow D_f = [1, 4]$

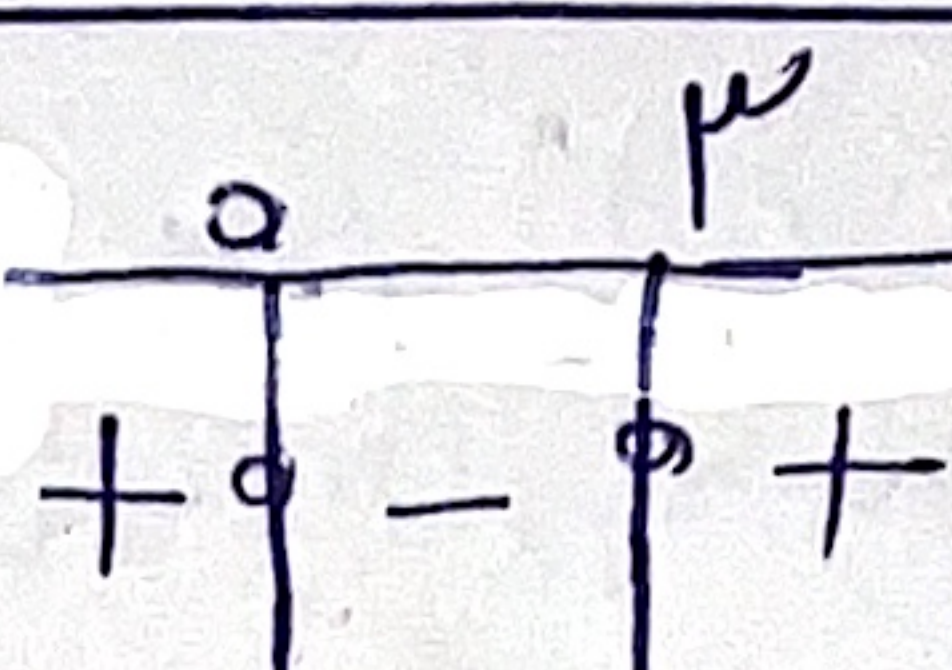
الف) $\frac{(n-1)(n-2)}{n-5} \Rightarrow \frac{1}{n-1} - \frac{1}{n-2} - \frac{1}{n-5} > 0 \Rightarrow D_f = (-\infty, 1) \cup (2, 5)$

ب) $\frac{(n-1)(n+1)}{(n-2)(n-1)} \Rightarrow \frac{-1}{n-2} - \frac{1}{n-1} > 0 \Rightarrow D_f = (-\infty, -1] \cup (2, +\infty)$

الف) $\sqrt{(n-3)(n-1)} \Rightarrow$  $\Rightarrow D_f = [3, +\infty)$ 9

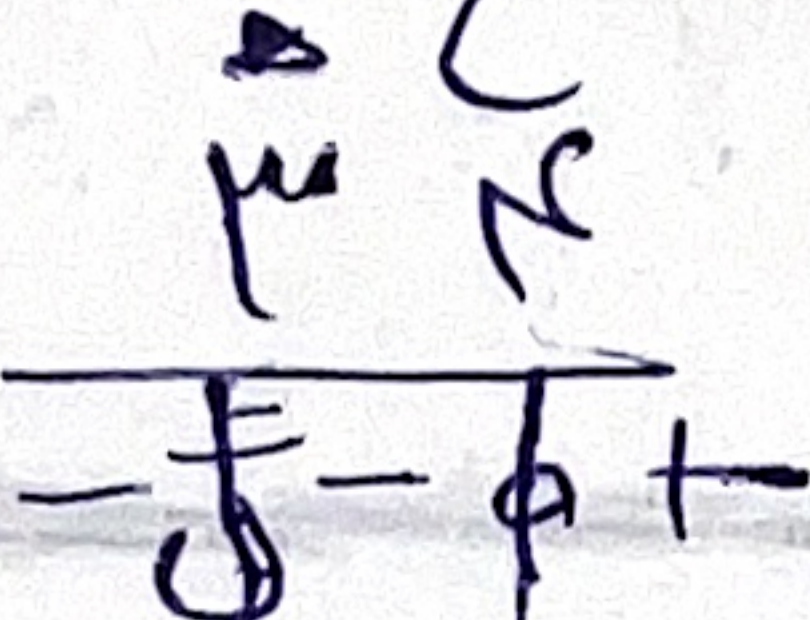
① توجه! (n^2+n+1) ریشه ندارد و مستخرج هم به ازای منفی شود و بی کلا در صورت دایره منتهی!

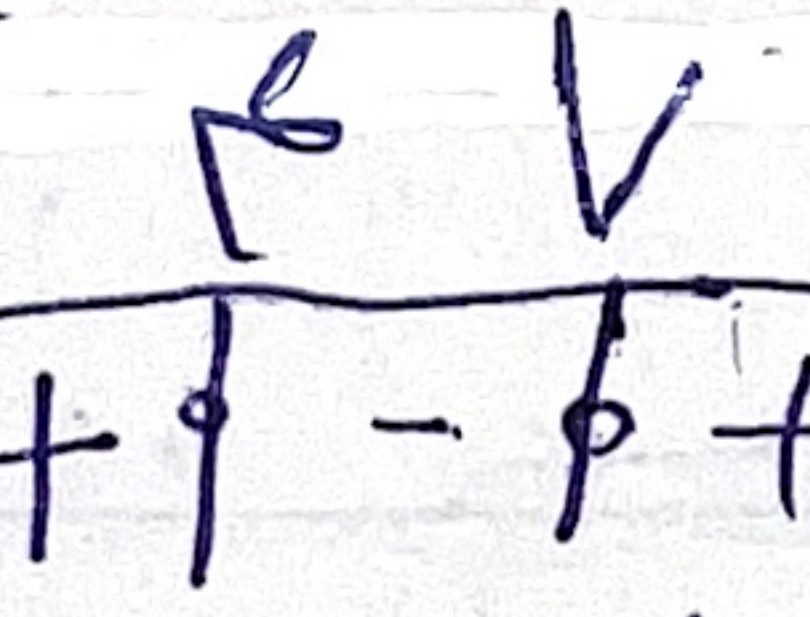
$n-1 \neq 0 \Rightarrow n \neq 1 \Rightarrow n \neq \pm 1 \Rightarrow D_f = \mathbb{R} - \{-1, 1\}$

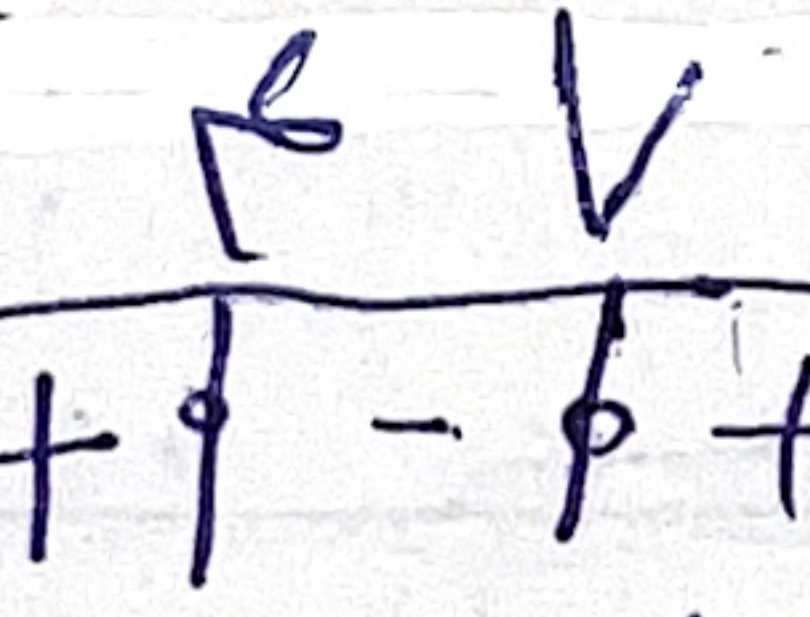
الف) $n^2 - 3n > 0 \Rightarrow n(n-3) > 0 \Rightarrow$  $D_f = \mathbb{R} - [0, 3]$

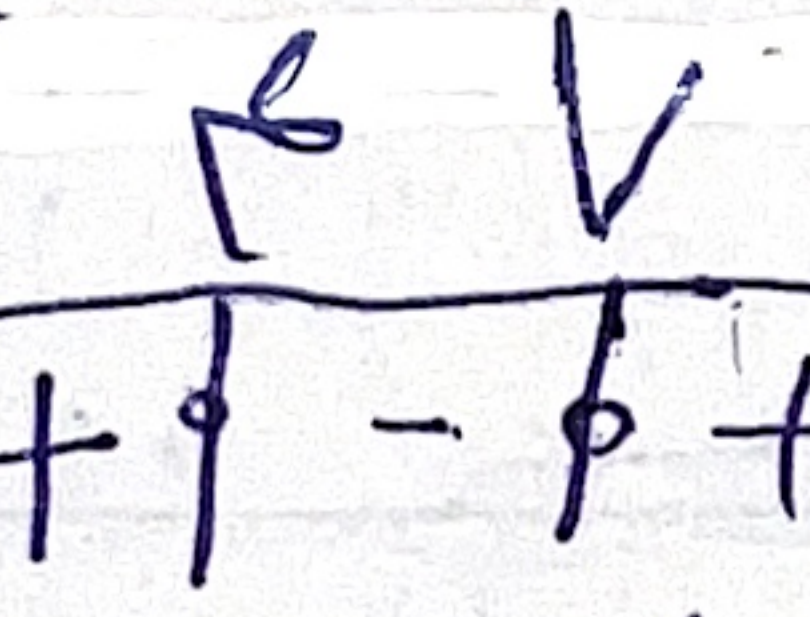
ب) $19 > n^2 \Rightarrow \sqrt{19} > n > -\sqrt{19} \Rightarrow n \in (-\sqrt{19}, \sqrt{19})$

$\Rightarrow D_f = (-\sqrt{19}, -1) \cup (1, \sqrt{19}) - \{-3, 3\}$

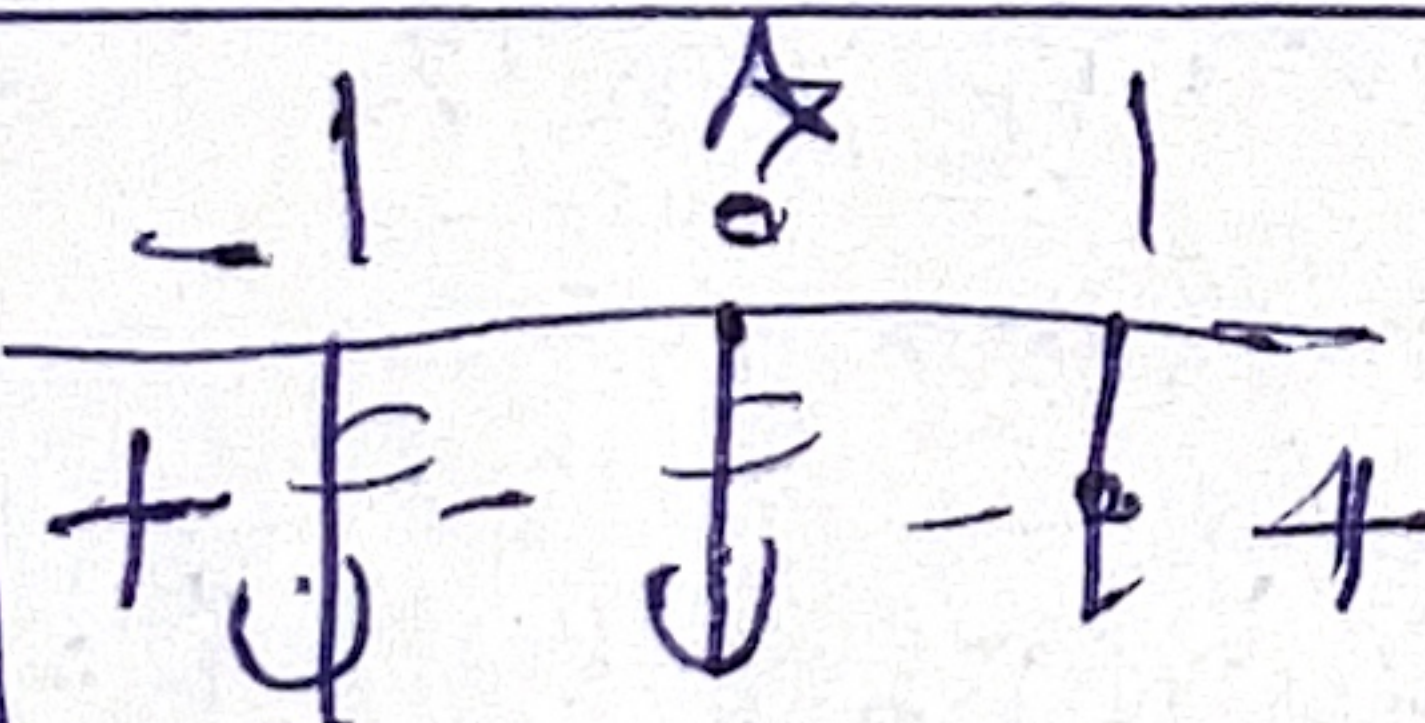
ج) $\frac{(n-3)(n-4)}{n-3} > 0 \Rightarrow$  $\Rightarrow D_f = (4, +\infty)$

د) $(n-1)(n-4) > 0 \Rightarrow$  $\Rightarrow D_f = (-\infty, 1) \cup (4, +\infty)$

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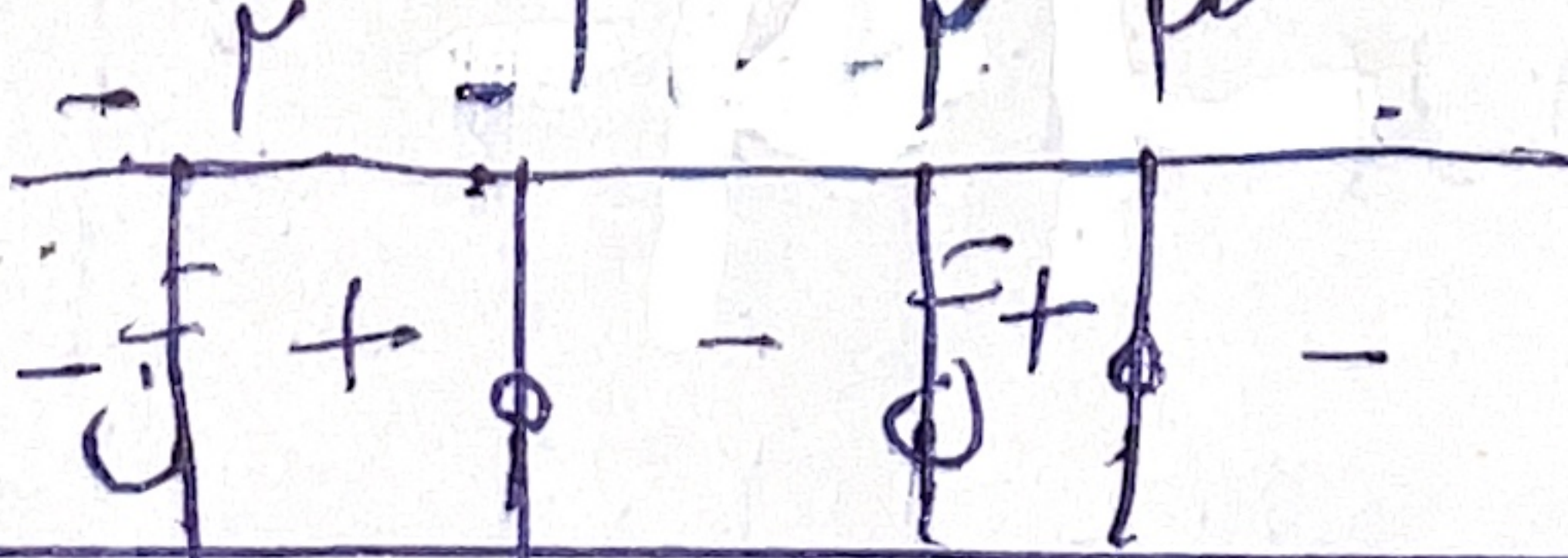
الف) $\frac{n(n-1)}{n(n+1)}$



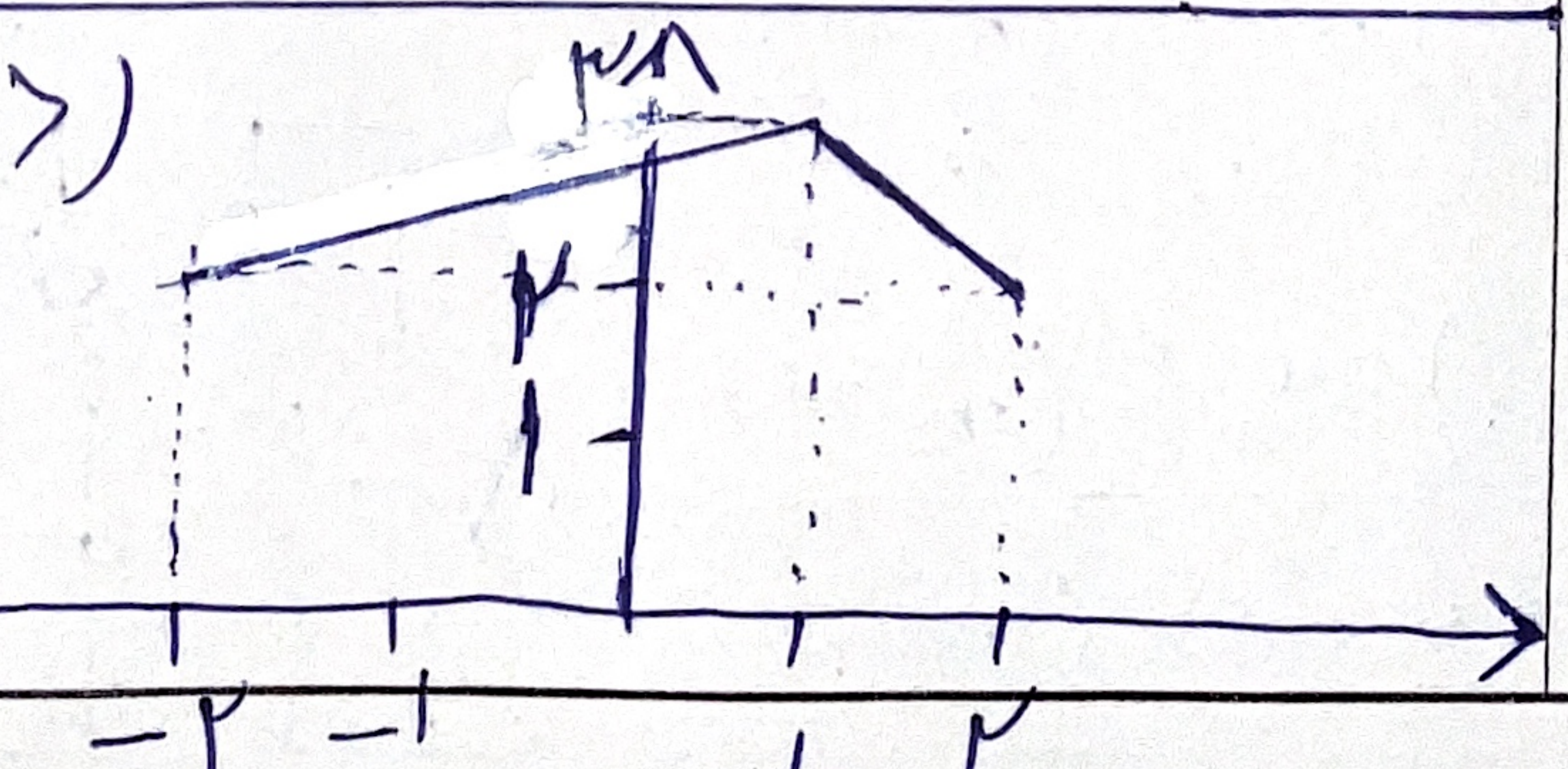
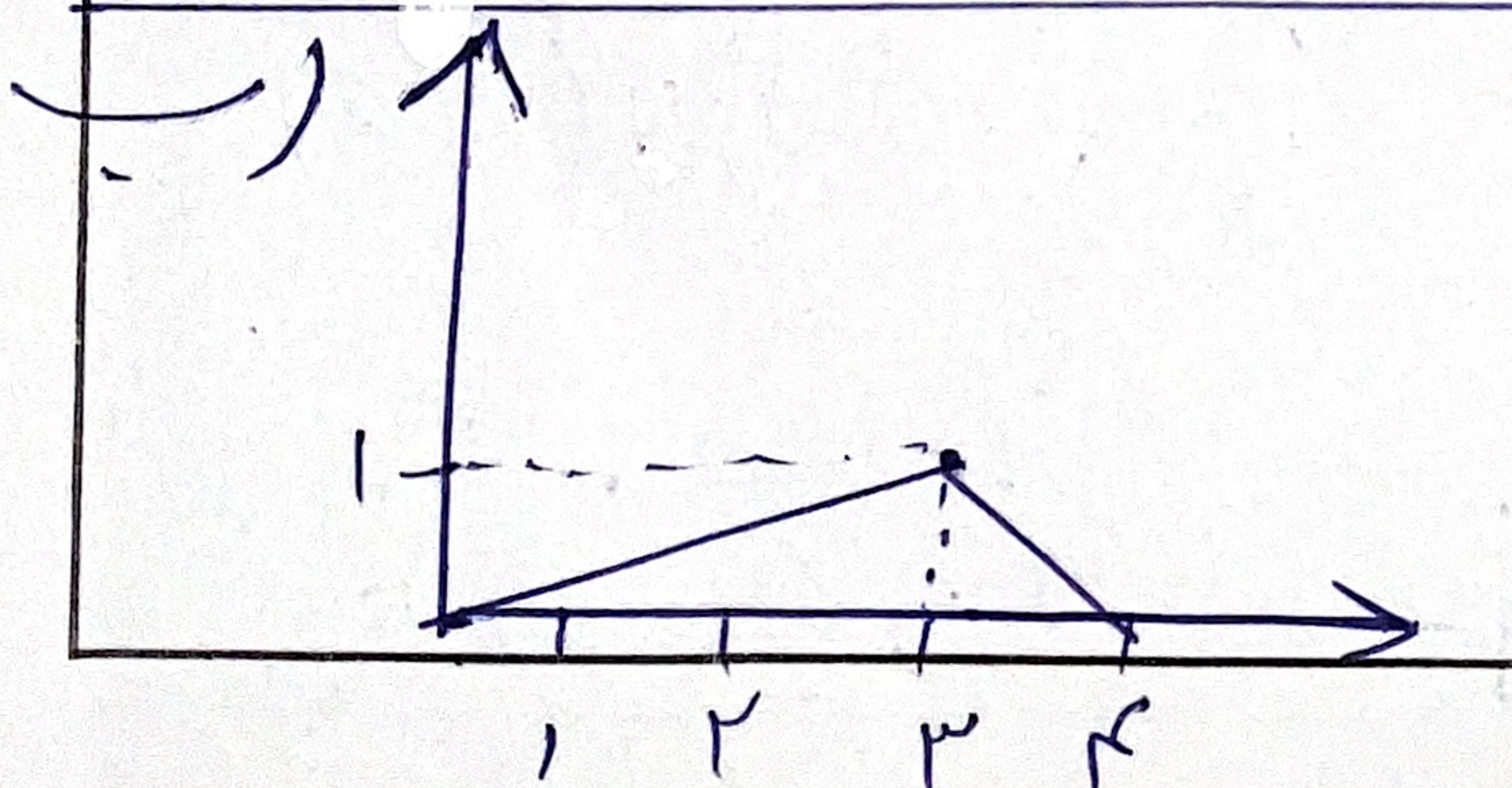
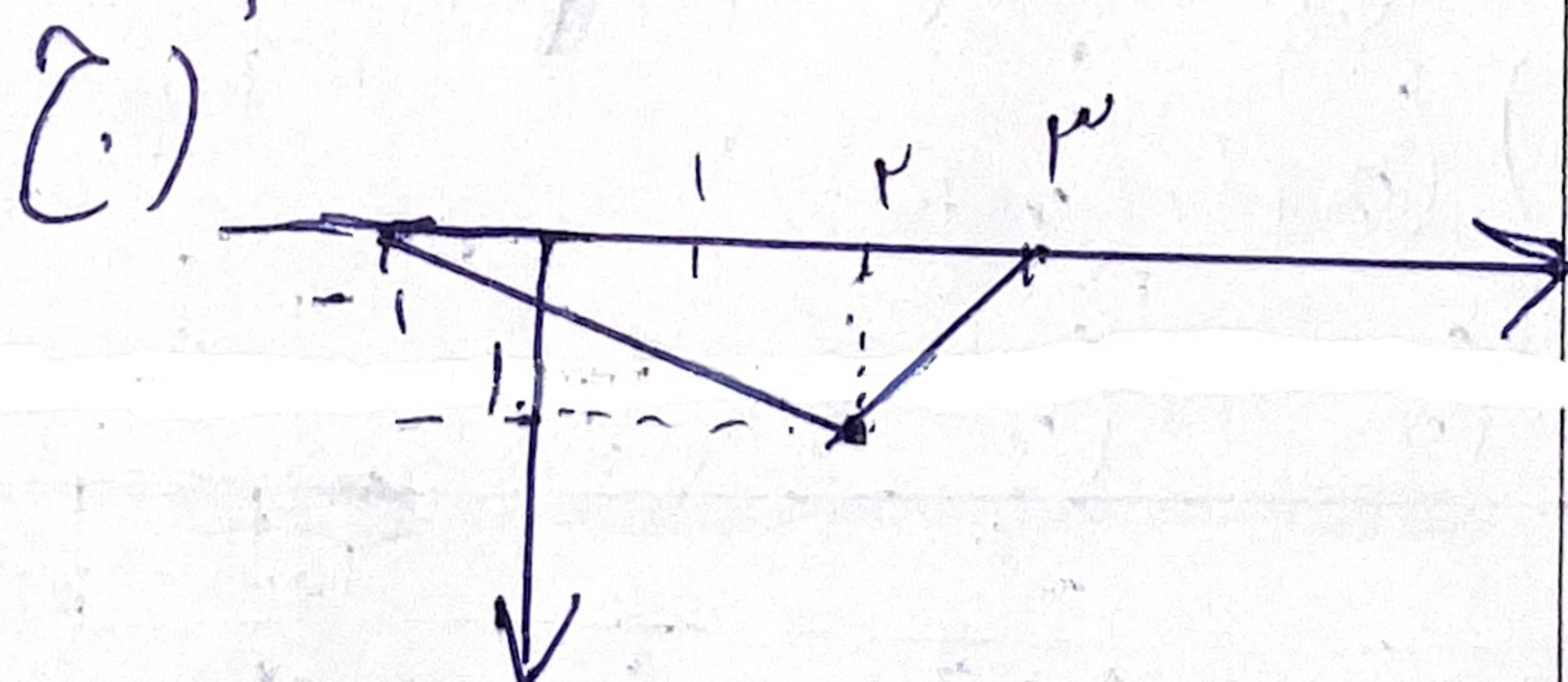
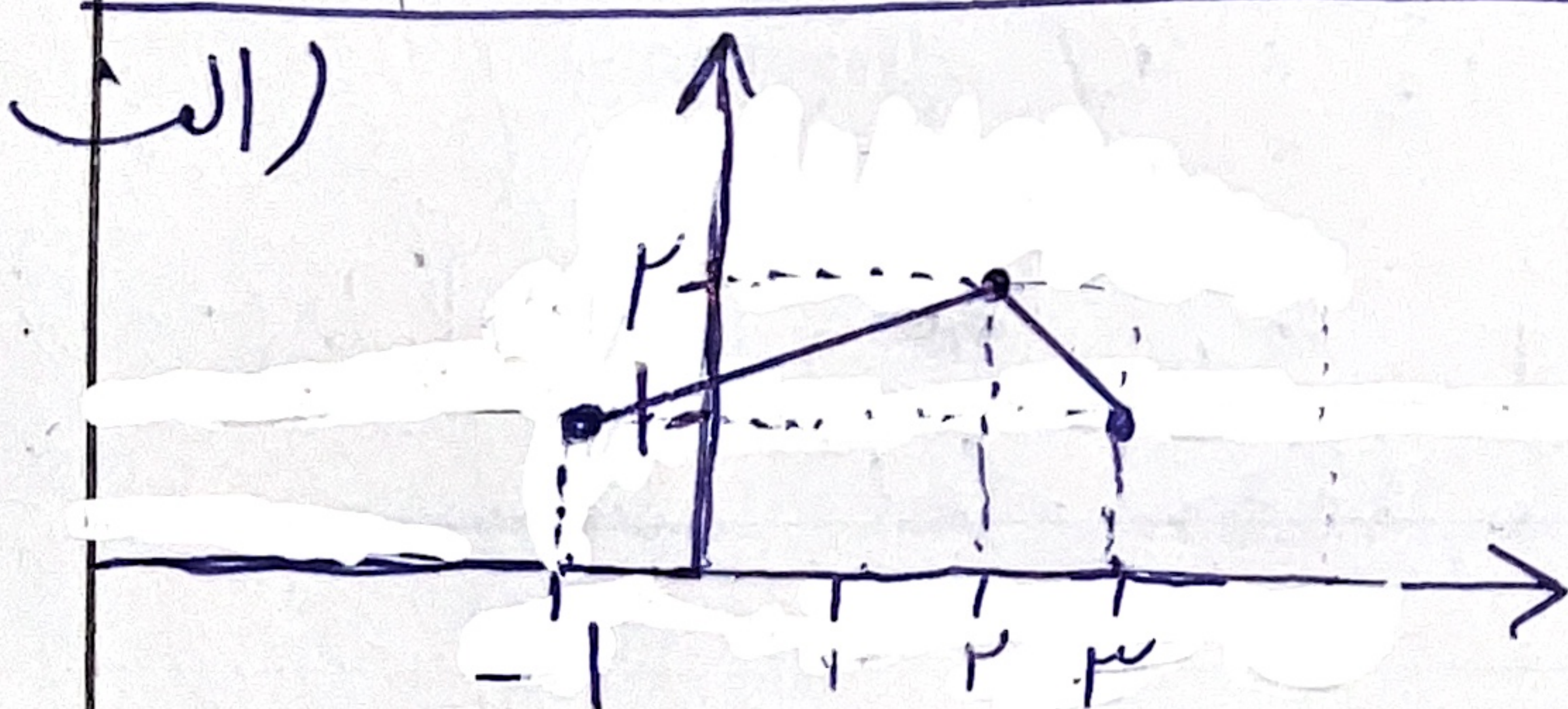
$\frac{n(n-1)}{n(n+1)}$	+	+	+	+
$\frac{n(n+1)}{n(n+1)}$	+	+	+	+
y	+	+	+	+

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$x = f(n) \Rightarrow n = -1 \leq 3 \mid f(n) = 0 \Rightarrow n = -2 \leq 2$

$\Rightarrow D_f = [-2, -1] \cup [1, 3]$ 

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