

$$A \times B - B^2 \rightarrow A \times B = \{(1,2), (1,3), (2,2), (2,3), (3,2), (3,3)\}$$

$$\hookrightarrow B^2 = \{(2,2), (2,3), (3,2), (3,3)\}$$

$$\hookrightarrow A \times B - B^2 = \{(1,2), (1,3)\}$$

سوال ۲۰) اگر $m^2 = m + 2 \rightarrow m^2 - m - 2 = (m-2)(m+1) \rightarrow m=2 \rightarrow$ مجموعه $(2,1), (2,4)$
 $\rightarrow m=-1 \rightarrow$ تهی بودن

ب) $m^2 = m + 2 \rightarrow m=2 \rightarrow \emptyset \cap \mathbb{R} \rightarrow$ مجموعه $(2,4), (2,1)$
 $\hookrightarrow m=-1 \rightarrow \emptyset \cap \mathbb{R} \rightarrow$ مجموعه $(-1,3), (-1,4)$
 از این دو مجموعه تقاطع خالی است

سوال ۳۰) $x^2 - 1 \xrightarrow{n=1} 1-1=0 \Rightarrow a+b \leq 0 \Rightarrow a \leq -b$
 $ax+b \xrightarrow{n=1} a+b$
 $ax+b \xrightarrow{n=2} 2a+b \Rightarrow 2a+b \leq 1 \xrightarrow{a \leq -b} -b \leq 1 \Rightarrow b \geq -1$
 $\xrightarrow{a \leq -b} a \leq \frac{-1}{1} \Rightarrow a \leq -1$
 $a \times b = 44$

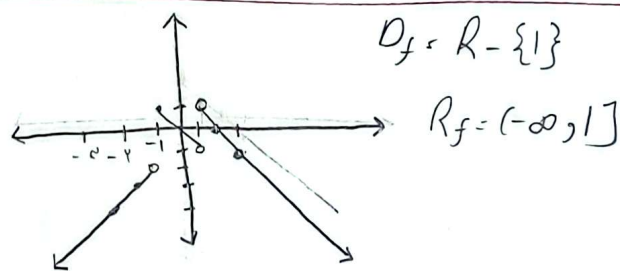
سوال ۴۰) $2x-3 \xrightarrow{n=k} 2k-3 \Rightarrow 2k-3 = \varepsilon - 3k \Rightarrow 5k = \varepsilon \Rightarrow k = \frac{\varepsilon}{5}$
 $\varepsilon - 3k \xrightarrow{n=k} \varepsilon - 3k$

- $x+2 \rightarrow$

x	1	2	3	4
y	1	0	-1	-2

$x-1 \rightarrow$

x	-1	-2	-3	-4
y	-2	-3	-4	-5



سوال ۶۰) الف) $xy^3 + x^2 + 1 = 0 \rightarrow xy^3 = -x^2 - 1 \rightarrow \begin{cases} xy_1^3 = -x^2 - 1 \\ xy_2^3 = -x^2 - 1 \end{cases} \Rightarrow xy_1^3 = xy_2^3 \rightarrow y_1 = y_2$ تابع است

ب) $x^2 + \varepsilon y^2 - 2x - 1 = 0 \rightarrow (x-1)^2 + (\sqrt{\varepsilon}y - \frac{1}{\sqrt{\varepsilon}})^2 = 0$
 $\rightarrow$ فقط یک نقطه در آن صدق می کند $\rightarrow (1, \frac{1}{\sqrt{\varepsilon}}) \rightarrow$ تابع است

سوال ۱۷) $\lim_{n \rightarrow \infty} n \sin y = y \sin n \rightarrow 0 = y \sin 0 \Rightarrow y = 0 \rightarrow$ صحیح نیست

ب) $\sqrt{\frac{n}{y}} + \sqrt{\frac{y}{n}} = \sqrt{\frac{1}{y}} + \sqrt{y} = 2 \rightarrow$ متقارن (اذا) در آن صورت

الف) $\sqrt{\frac{n-1}{n-2}} + \sqrt{\frac{2-n}{n}} \rightarrow \frac{2-n}{n} \rightarrow \frac{1}{-1+1} \rightarrow D_f = (0, 2]$ سوال ۱۸

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

$D_f \cap D_f' = (0, 1]$

ب) $\sqrt{n} + \sqrt{y-1} = \sqrt{3} \rightarrow \sqrt{y-1} = \sqrt{3} - \sqrt{n} \rightarrow \sqrt{3} - \sqrt{n} > 0$ $\sqrt{3} > \sqrt{n}$
 $\hookrightarrow n < 3$

$\Rightarrow D_f = [0, 3]$

سوال ۹) $y = \frac{\sqrt{n^2 - 7n + 4}}{\sqrt{n - \log n + 14}} \rightarrow n^2 - 7n + 4 = (n-1)(n-4) > 0$ $D_f = (-\infty, 1] \cup [4, +\infty)$

$n - \log n + 14 > 0 \rightarrow -9n > -14 \rightarrow 9n > 14 \rightarrow n < \frac{14}{9} = D_f'$

$y = \frac{\sqrt{n^2 - 7n + 4}}{\sqrt{n^2 - \log n + 14}} = \frac{(n-4)(n-1)}{(n-2)(n-1)} \rightarrow$ $n < 1, 2, 4, 1$

$\rightarrow D_f = (-\infty, 1] \cup (2, 4] \cup (1, +\infty)$

سوال ۱۰) $y = \frac{\sqrt{2n^2 - 2n + 1}}{\sqrt{4n^2 - 7n + 2}} = \frac{\sqrt{(n-1)(n-1)}}{\sqrt{(n-2)(n-1)}} \rightarrow n < 1, \frac{1}{2}, \frac{2}{3}$
 $D_f \cap D_f' = (-\infty, 1) \cup [\frac{1}{2}, \frac{2}{3}) \cup (\frac{2}{3}, +\infty)$

$y = \frac{\sqrt{2n^2 - 2n + 1}}{\sqrt{4n^2 - 7n + 2}} = \frac{(n-1)(n-1)}{(n-2)(n-1)} \rightarrow n < 1, \frac{1}{2}, \frac{2}{3}$
 $D_f = (-\infty, 1) \cup (\frac{1}{2}, \frac{2}{3}) \cup (\frac{2}{3}, +\infty)$