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نام و نام خانوادگی آیدر زاده آیدر پاسخنامه تشریحی تکلیف شماره ۱۰۰ کلاس از روز
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$$A \times B = \{(2,3), (2,2), (1,2), (2,2), (2,2), (1,2)\}$$

$$B \times B = \{(2,2), (2,2), (2,2), (2,2)\}$$

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

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الف) $f(x) = \{(2, m^2), (2, 1), (-3, m), (-2, m), (m, m+2), (m, 4)\} \Rightarrow m^2 = m+2 \Rightarrow m^2 - m - 2 = 0$
 $\Rightarrow (m-2)(m+1) = 0 \Rightarrow m=2, m=-1$

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ب) $g(x) = \{(2, m^2), (2, 1), (m, 4), (2, m+2), (-2, m), (-1, 3)\} \Rightarrow m^2 = m+2 \Rightarrow m^2 - m - 2 = 0$
 $\Rightarrow (m-2)(m+1) = 0 \Rightarrow m=2, m=-1$

$$x=1 \Rightarrow (1)^2 - 1 = a+b \Rightarrow a+b=0$$

$$x=2 \Rightarrow (2)^2 = 2a+b \Rightarrow 2a+b=1$$

$$a \times b = -44$$

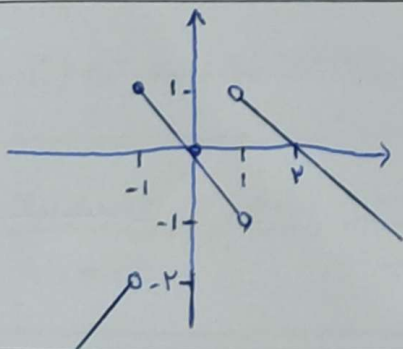
$$\Rightarrow \begin{cases} a+b=0 \\ 2a+b=1 \end{cases} \Rightarrow \begin{cases} -2a-2b=0 \\ 2a+b=1 \end{cases} \Rightarrow -b=1 \Rightarrow b=-1$$

$$a=1$$

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$$x=k \Rightarrow 2k-3 = 5-3k \Rightarrow 5k=8 \Rightarrow k = \frac{8}{5}$$

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

$$R_f = (-\infty, 1]$$

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الف) $xy^r = -x^r - 1 \Rightarrow y^r = -\frac{x^r - 1}{r} \Rightarrow (x_1, y_1) \in P \xrightarrow{x_1 = x_r} y_1 = y_r \Rightarrow y_1^r = -\frac{x_1^r - 1}{r}$, $y_r^r = -\frac{x_r^r - 1}{r} \xrightarrow{x_1 = x_r} y_r^r = y_1^r \Rightarrow y_1^r - y_r^r = 0 \Rightarrow (y_1^r + y_r y_1 + y_1^r)(y_1 - y_r) = 0 \Rightarrow y_r = y_1$ تابع مستقيم ب) $x^r - 2x + 1 + (y^r - 1)y + 1 \Rightarrow (x-1)^r + (y-1)^r = 0 \Rightarrow x-1=0 \Rightarrow x=1$ $y-1=0 \Rightarrow y=1 \Rightarrow \left(\frac{1}{r}\right) \Rightarrow$ تابع مستقيم	6
الف) $x \sin y = y \sin x \xrightarrow{x=180} 180 \sin y = 0 \Rightarrow \sin y = 0 \Rightarrow y = 180, 0$ تابع نیست ✓ ب) $\frac{x}{y} + \frac{y}{x} + r \sqrt{\frac{x}{y}} = r \Rightarrow \frac{x}{y} + \frac{y}{x} = r \Rightarrow \frac{x^r + y^r}{xy} = r \Rightarrow x^r + y^r = rxy \Rightarrow x^r - 2xy + y^r = 0 \Rightarrow (x-y)^r = 0 \Rightarrow x=y \rightarrow$ تابع مستقيم ✓	7
الف) I) $\frac{x-1}{x-2} \geq 0 \Rightarrow \frac{x-1}{x-2} \geq 0 \Rightarrow (-\infty, 1] \cup (2, +\infty)$ II) $\frac{r-x}{x} \geq 0 \Rightarrow \frac{r-x}{x} \geq 0 \Rightarrow (0, r]$ $\Rightarrow I \cap II \Rightarrow [0, 1]$ ✓ ب) $\sqrt{y-1} = \sqrt{r} - \sqrt{x} \Rightarrow y-1 = x - 2\sqrt{rx} + r \Rightarrow \boxed{x \geq 0}$ $\sqrt{r} - \sqrt{x} \geq 0 \Rightarrow \sqrt{x} \leq \sqrt{r} \rightarrow D = [0, r]$ 1, 2, 5	8
الف) I) $x^r - vx + y \geq 0 \Rightarrow (x-y)(x-1) \Rightarrow \frac{x-1}{x-2} \geq 0 \Rightarrow (-\infty, 1] \cup (2, +\infty)$ II) $x - 10x + 14 \geq 0 \Rightarrow (x-1)(x-2) \Rightarrow \frac{x-1}{x-2} \geq 0 \Rightarrow (-\infty, 1] \cup (2, +\infty)$ $\Rightarrow I \cap II \Rightarrow [-\infty, 1] \cup (2, +\infty)$ 1, 2, 5 ب) $\frac{x^r - vx + y}{x^r - 10x + 14} \geq 0 \Rightarrow \frac{(x-y)(x-1)}{(x-1)(x-2)} \geq 0 \Rightarrow \frac{x-y}{x-2} \geq 0 \Rightarrow \frac{x-1}{x-2} \geq 0 \Rightarrow (-\infty, 1] \cup (2, +\infty) \cup (1, 2)$ ✓	9
الف) I) $2x^r - 5x + 3 \geq 0 \xrightarrow{a+b+c=0} (x-1)(x-\frac{3}{2}) \Rightarrow \frac{x-1}{x-2} \geq 0 \Rightarrow (-\infty, 1] \cup [\frac{3}{2}, +\infty)$ II) $2x^r - vx + 4 \geq 0 \xrightarrow{a+b+c=0} (x-1)(x-\frac{4}{2}) \Rightarrow \frac{x-1}{x-2} \geq 0 \Rightarrow (-\infty, 1] \cup (2, +\infty)$ $\Rightarrow I \cap II \Rightarrow (-\infty, 1] \cup [\frac{3}{2}, +\infty)$ ✓ ب) $\frac{2x^r - 5x + 3}{2x^r - vx + 4} \geq 0 \xrightarrow{a+b+c=0} \frac{(x-1)(x-\frac{3}{2})}{(x-1)(x-\frac{4}{2})} \geq 0 \Rightarrow \frac{x-\frac{3}{2}}{x-2} \geq 0 \Rightarrow \frac{x-1}{x-2} \geq 0 \Rightarrow (-\infty, 1] \cup [\frac{3}{2}, +\infty) - \{1\}$ ✓	10