

الف) $4x^2 - 5x - 2 = 0 \rightarrow x^2 - 5x - 2 = 0 \rightarrow (x-6)(x+1) = 0$

$x = \frac{9}{4} \text{ و } -\frac{2}{4} \Rightarrow x = \frac{9}{4} \text{ و } -\frac{1}{2}$

ب) $3x^2 - 8x - 3 = 0$

$x^2 - 8x - 9 = 0$

$(x-9)(x+1) = 0$

$x = 9, -1 \Rightarrow x = 9 \text{ و } -\frac{1}{3}$

ج) $4x^2 - 2x - 3 = 0$

$x^2 - 2x - 12 = 0$

$(x-6)(x+2) = 0$

$x = \frac{4}{2}, -\frac{2}{2} \Rightarrow x = \frac{2}{1}, -\frac{1}{1}$

د) $2x^2 - 5x + 2 = 0$

$x^2 - 5x - 2 = 0$

$(x-8)(x+3) = 0$

$x = \frac{8}{1}, -\frac{3}{1} \Rightarrow x = 8, -\frac{3}{1}$

الف) $x^2 - 5x - 14 = 0 \rightarrow (x-7)(x+2) = 0 \rightarrow x = 7 \text{ و } (-2)$

ب) $2x^2 + 5x + 2 = 0 \rightarrow x^2 + 5x + 4 = 0 \rightarrow (x+2)(x+1) = 0$

ج) $x^2 + 2x + 3 = 0 \rightarrow \Delta < 0$ ریشه ندارد
 $x = -\frac{2}{2}, -\frac{3}{2} \rightarrow x = -1, -\frac{3}{2}$

د) $3x^2 + 4x - 2 = 0 \rightarrow \frac{-4 \pm \sqrt{4^2 + 24}}{6}$

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

$= \{(2,2), (3,3), (2,2), (3,3)\}$

$= \{(1,2), (1,3)\}$

الف) $m^2 = m + 2 \rightarrow m = \textcircled{1}, \textcircled{2} \rightarrow \overline{00} \overline{00}$

ب) $m^2 = m + 2 \rightarrow m = \textcircled{1}, \textcircled{2} \rightarrow \overline{00} \overline{00}$

$a^2 = 3a - 2 \rightarrow a = \textcircled{1}, \textcircled{2} \rightarrow \overline{00} \overline{00}$

$\begin{cases} a = a + b \\ a = 2a + b \end{cases} \Rightarrow \begin{matrix} a = (-a) \\ b = a \end{matrix} \rightarrow a \times b = (-4a)$	۶
$x = k \quad 2k - 2 = 1 - 2k \rightarrow k = \frac{1}{4}$	۷
الف) $y^2 \ominus 4y \rightarrow \boxed{\alpha}$ تابع نیست ب) $x = 0 \rightarrow y = \pm 2 \rightarrow \boxed{\alpha}$ تابع نیست ج) $x = \pi \rightarrow y = \pm \sqrt{2} \rightarrow \boxed{\alpha}$ تابع نیست د) $y^2 + (x+1)^2 = 0 \rightarrow \cdot \rightarrow \boxed{\checkmark}$ تابع هست	۸
الف) $\sqrt[3]{y} + x^2 = 2x - 2 \quad \boxed{\checkmark}$ تابع هست $\begin{aligned} \sqrt[3]{y_1} + x_1^2 &= 2x_1 - 2 \xrightarrow{x_1=x_2} 2x_1 - 2 - x_1^2 = 2x_2 - 2 - x_2^2 \\ \sqrt[3]{y_2} + x_2^2 &= 2x_2 - 2 \end{aligned} \quad \sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2$ ب) $y^2 + 2y = 5x \quad \boxed{\checkmark}$ تابع هست $y_1^2 + 2y_1 = 5x_1 \quad , \quad y_2^2 + 2y_2 = 5x_2 \xrightarrow{x_1=x_2} y_1^2 + 2y_1 = y_2^2 + 2y_2 \rightarrow y_1 = y_2$	۹
الف) $x \sin y = y \sin x \quad \boxed{\alpha}$ تابع نیست $x = 0 \rightarrow 0 \times \sin y = y \times 0 \rightarrow y$ می تواند هر مقدار باشد ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \quad \boxed{\checkmark}$ تابع هست $x = y \quad (x, y \neq 0)$	۱۰