

الف) $4m^2 - 5m - 4 = 0 \rightarrow m^2 - 5m - 4 = 0$ $(m-9)(m+4) = 0 \quad m=9 \quad m=-4$ $-\frac{4}{9} = \left(-\frac{4}{9}\right) \quad \frac{9}{4} = \left(\frac{9}{4}\right)$	ج) $4m^2 - 5m - 4 = 0 \rightarrow m^2 - 5m - 4 = 0$ $(m-4)(m+1) = 0 \quad m=4 \quad m=-1$ $\frac{4}{5} = \left(\frac{4}{5}\right) \quad -\frac{1}{5} = \left(-\frac{1}{5}\right)$	1
ب) $3m^2 - 11m - 4 = 0 \rightarrow m^2 - 11m - 4 = 0$ $(m+1)(m-9) = 0 \quad m=-1 \quad m=9$ $-\frac{1}{9} = \left(-\frac{1}{9}\right) \quad \frac{9}{1} = \left(\frac{9}{1}\right)$	د) $3m^2 - 5m - 12 = 0 \rightarrow m^2 - 5m - 12 = 0$ $(m-1)(m+3) = 0 \quad m=1 \quad m=-3$ $-\frac{3}{1} = \left(-\frac{3}{1}\right) \quad \frac{1}{3} = \left(\frac{1}{3}\right)$	1
الف) $m^2 - 5m - 14 = 0 \quad (m-7)(m+2)$ $m=7, m=-2$	ج) $m^2 + 2m + 3 = 0 \rightarrow b^2 - 4ac \rightarrow$ $4 - 4(1)(3) = -8$ Δ منفی است و ریشه ندارد	2
ب) $2m^2 + 5m + 3 = 0 \quad b^2 - 4ac = 0$ $25 - 4(2)(3) = 1$ $\frac{-5 \pm 1}{4} = \left(-1\right) \quad \frac{-5 \pm 1}{4} = \left(-\frac{3}{2}\right)$	د) $3m^2 + 3m - 2 = 0$ $b^2 - 4ac \rightarrow 9 - 4(3)(-2) = 33$ $\frac{-3 \pm \sqrt{33}}{6}$ $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	2
$A \times B = \{(1,2)(2,2)(2,3)(3,3)(3,2)\}$ $B \times B = \{(2,3)(3,2)(2,2)(3,3)\}$ $A \times B = \{(1,3)(1,2)\}$		3
الف) $m^2 = m+2 \quad m^2 - m - 2 = 0 \quad (m-2)(m+1) = 0 \quad m=2, -1$ $m = -1$ نمی تواند باشد پس		4
ب) $m^2 = m+2 \quad (m-2)(m+1) = 0 \quad m=2, -1$ $\times \quad \times$ معادله برای m وجود ندارد		4
$a^2 = 3a - 2 \quad a^2 - 3a + 2 = 0 \quad (a-1)(a-2) = 0 \rightarrow a=1$ $a=2$		5

$\left. \begin{aligned} n^2 - 1 &= a \cdot n + b \quad n=1 \rightarrow a+b=0 \\ a \cdot n + b &= n^2 \quad n=2 \rightarrow 2a+b=1 \end{aligned} \right\} \rightarrow a=1 \quad b=-1$ $a \times b = (-1) \times 1 = -1$	6
$2m - 3 = 4 - 2m$ $2m + \frac{3m}{5} = 4 + \frac{4}{5}$ $K = \frac{y}{x}$	7
الف) $y^3 - 4y = x^2 - 4x + 3 \rightarrow x=1$ $y^3 - 4y = 0 \quad y(y^2 - 4) = 0 \quad y=0 \quad y^2=4$ $y = \pm 2$ y چند جواب دارد تایید نیست X	8
الف) $\sqrt[3]{y} + x^2 = 2x - 1$ $\sqrt[3]{y_1} + x_1^2 - 2x_1 + 1 = 0$ $\sqrt[3]{y_2} + x_2^2 - 2x_2 + 1 = 0$ $\sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2$ تایید است ✓	9
الف) $m \sin y = y \sin m \quad m=0$ $y \sin 0 = 0 \quad y \times 0 = 0$ $y \in \mathbb{R}$ تایید نیست X	10
ب) $x + y = 3 \rightarrow x=0$ $y = 3 \quad y = \pm 3$ $x = \sqrt{1 - \cos^2 \theta} \quad y = \sqrt{1 - 0}$ $x = \sqrt{1} = 1 \quad y = \pm 1$ $y^2 + x^2 + 2x + 1 = 0$ $y^2 + (x+1)^2 = 0 \rightarrow y=0 \rightarrow x=-1$ تایید نیست X	11
ب) $y^3 + y = x$ $y^3 + y_1 = x_1 \quad (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + 2(y_1 - y_2) = 0$ $y_1^3 + y_1 = x_1 \quad (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 2) = 0$ $y_1^3 + y_1 = y_2^3 + y_2 \quad y_1 = y_2$ $y_1^3 + y_1 - y_2^3 - y_2 = 0 \quad \Delta = y_1^2 - 4(1)(y_1^2 + 2) =$ $y_1^2 - 4y_1^2 - 8 = -3y_1^2 - 8 = 0$ تایید است ✓	12
ب) $\sqrt{\frac{m}{y}} + \sqrt{\frac{y}{m}} = 2$ $m, y \neq 0$ m, y باید هم علامت باشند m, y باید مثبت باشند $(1, 1) \quad (4, 4) \quad (9, 9)$ تایید است ✓	13