

$2x^2 - 5x - 6 = 0 \Rightarrow x^2 - 5x - 3 = 0 \Rightarrow (x+2)(x-9) = 0 \Rightarrow x = -\frac{2}{1} \text{ و } \frac{9}{1}$
 $3x^2 - 8x - 3 = 0 \Rightarrow x^2 - 8x - 9 = 0 \Rightarrow (x-9)(x+1) = 0 \Rightarrow x = \frac{9}{1} \text{ و } -\frac{1}{1}$
 $4x^2 - 4x - 3 = 0 \Rightarrow x^2 - 4x - 12 = 0 \Rightarrow (x-6)(x+2) = 0 \Rightarrow x = \frac{6}{1} \text{ و } -\frac{2}{1}$
 $2x^2 - 5x - 12 = 0 \Rightarrow x^2 - 5x - 12 = 0 \Rightarrow (x-8)(x+3) = 0 \Rightarrow x = \frac{8}{1} \text{ و } -\frac{3}{1}$

(الف) $(x-7)(x+2) = 0 \Rightarrow x = 7 \text{ و } -2$
 (ب) $x^2 + 5x + 4 = 0 \Rightarrow (x+3)(x+2) = 0 \Rightarrow x = -\frac{3}{1} \text{ و } -\frac{2}{1}$
 (ج) $\Delta = 4 - 4(1)(2) = -8 < 0 \Rightarrow$ ریشه ندارد
 (د) $\Delta = 9 - 4(2)(-2) = 33 \Rightarrow x = \frac{-3 + \sqrt{33}}{4} \text{ و } \frac{-3 - \sqrt{33}}{4}$

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

(الف) $m^2 = m + 2 \Rightarrow m^2 - m - 2 = 0 \Rightarrow (m-2)(m+1) = 0 \Rightarrow m = -1 \text{ و } 2$
 (ب) $m^2 = m + 2 \Rightarrow m^2 - m - 2 = 0 \Rightarrow (m-2)(m+1) = 0 \Rightarrow m = -1 \text{ و } 2$

$a^2 = 3a - 2 \Rightarrow a^2 - 3a + 2 = 0 \Rightarrow (a-1)(a-2) = 0$
 $a = 1 \text{ و } 2$
 $(1,1), (1,5)$

$x=1 \rightarrow a+b=0$ $x=2 \rightarrow 2a+b=1 \rightarrow \begin{cases} 2a+b=1 \\ -a+b=0 \end{cases}$ $a=1 \rightarrow b=-1$ $a \times b = 1 \times -1 = -1$	۶
$k=x \rightarrow 2k-3=4-3k \rightarrow 5k=7 \rightarrow k=\frac{7}{5}$	۷
الف) تابع نیست $y_1=y_2$ $y_1^2-2y_1=y_2^2-2y_2 \rightarrow y_1^2-y_2^2-2y_1+2y_2=0 \rightarrow (y_1-y_2)(y_1+y_2+y_2-2)=0$ ب) تابع نیست $x=0 \rightarrow 1 \times 1=3 \rightarrow y=3-3$ ج) تابع نیست $x=90^\circ \rightarrow 1 \times 1=1 \rightarrow y=1-1$ د) تابع است $y^2+(x+1)^2=0 \rightarrow y=0, x=-1$	۸
الف) تابع است $\sqrt{y} = -x^2+2x-2 \rightarrow \sqrt{y_1} = \sqrt{y_2} \rightarrow y_1=y_2$ ب) تابع است $y_1^3+2y_1=y_2^3+y_2 \rightarrow y_1^3-y_2^3+2y_1-2y_2=0$ $(y_1-y_2)(y_1^2+y_1y_2+y_2^2+2)=0 \rightarrow y_1=y_2$ د) تابع نیست $x=0 \rightarrow 0 \times \sin y = 0 \times y = 0$	۹
ب) تابع هست $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \xrightarrow{\text{توان ۲}} \frac{y}{x} + \frac{x}{y} + 2\sqrt{\frac{yx}{yx}} = 4$ $(x-y)^2=0 \rightarrow x=y$ $x^2+y^2=2xy$ $\frac{x^2+y^2}{xy} = 2 \rightarrow \frac{x}{y} + \frac{y}{x} = 2$	۱۰