

الف) $x^2 - 5x - 24 = 0 \rightarrow (x-9)(x+2) \rightarrow \frac{9}{4} \pm \frac{5}{4}, -\frac{2}{4} = \left(\frac{5}{4}\right)$ ①

ب) $x^2 - 11x - 9 = 0 \rightarrow (x-9)(x+1) \rightarrow \frac{9}{4} \pm \frac{1}{4}, \left(-\frac{1}{4}\right)$

ج) $x^2 - 4x - 12 = 0 \rightarrow (x-4)(x+2) \rightarrow \frac{4}{4} \pm \frac{4}{4}, -\frac{2}{4} = \left(-\frac{1}{4}\right)$

د) $x^2 - 5x - 24 = 0 \rightarrow (x-1)(x+2) = 0 \rightarrow \frac{1}{4} \pm \frac{5}{4}, \left(-\frac{2}{4}\right)$

الف) $(x-7)(x+2) = 0 \rightarrow 7, -2$

ج) $\Delta = b^2 - 4ac = 4 - 12 = -8 \propto$ ریشه ندارد
 $\Delta < 0$ ②

ب) $x^2 + 5x + 4 = 0 \rightarrow (x+2)(x+2)$
 $-\frac{5}{2} = (-1), \left(-\frac{3}{2}\right)$

د) $\Delta = 9 - 4(-2)(3) = 9 + 24 = 33$
 $x = \frac{-3 \pm \sqrt{33}}{4}$ ③

$A \times B = \{2, 3, 4, 5, 6, 7\} - \{4, 5, 6, 7\} = \{2, 3\}$ ④

الف) $m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow -1 \checkmark$
 $\rightarrow 2 \propto \rightarrow 2, 4 - 2, 1 \propto$ ⑤

ب) $m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) \rightarrow -1 \rightarrow -1, 4 - -1, 3 \propto$
 $\rightarrow 2 \rightarrow 2, 1 - 2, 4 \propto$ جواب ندارد ⑥

$a^2 = 3a - 2 \rightarrow a^2 - 3a + 2 = 0 \rightarrow (a-1)(a-2) = 0 \rightarrow 1 \checkmark$
 $\rightarrow 1, 4 - 1, 3 \propto$ ⑦

$1 - 1 = a + b \rightarrow a + b = 0 \rightarrow 2a + 2b = 0$
 $2a + b = 1 \rightarrow 2a - 1 = 1 \rightarrow 2a = 2 \rightarrow a = 1$
 $1 = 2a + b$
 $b = -1$
 $a \times b = -1 \times 1 = -1$ ⑧

$2K - 3 = K - 3K$

$aK = 5 \rightarrow K = \left(\frac{5}{a}\right)$ ⑨

الف) چون به صورت $y^2 - 2y$ و علامت $\propto$ بین متفاوت پس نیست

ج) $1 - \cos 2x, 12, \cos x$

$\cos x = 0 \rightarrow \cos x = 0 \rightarrow y = \pm 1 \propto$

ب) $x = 1 \rightarrow |y| = 2 \rightarrow y = \pm 2 \propto$

د) $y_1^2 = y_2^2 \rightarrow y_1 = \pm y_2$ ⑩

(9)

$\sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2 \checkmark$
 ها y $\rightarrow$ x ها برابر (الف)
 $\sqrt[3]{}$ برابر

ب) $y_1^3 + 2y_1 = y_2^3 + 2y_2 \rightarrow y_1^3 - y_2^3 = 2y_2 - 2y_1$

$(y_1 - y_2)(y_1^2 + y_1y_2 + y_2^2) = -2(y_1 - y_2)$

$(y_1 - y_2)(y_1^2 + y_1y_2 + y_2^2) + 2(y_1 - y_2) = 0$

$(y_1 - y_2)(y_1^2 + y_1y_2 + y_2^2 + 2) = 0$ $\rightarrow$ $(y_1^2 + y_1y_2 + y_2^2 + 2 = 0)$
 $y_2^2 - 4(y_2 + 2) = y_2^2 - 4y_2 - 8$
 $= -4y_2 - 8$
 $y_1 - y_2 = 0$
 $y_1 = y_2$ یا
 پس $y_1 = y_2$ در عبارت تابع است. $\Delta < 0$ منفی

الف) $x \rightarrow y \sin x = 0$ $\rightarrow$ y ی نایست $\propto$
 میزنه $\sin$ با 0

(10)

ب) $y = x = 1 \rightarrow \sqrt{\frac{1}{1}} + \sqrt{\frac{1}{1}} = 2 \checkmark$

