

الف) $x^2 - 5x - 36 = 0 \Rightarrow (x-9)(x+4) \Rightarrow \frac{q}{r} = \frac{-36}{-5} = \frac{36}{5}$ ✓

ب) $x^2 - 8x - 9 = 0 \Rightarrow (x-9)(x+1) \Rightarrow \frac{q}{r} = \frac{-9}{-8} = \frac{9}{8}$ ✓

ج) $x^2 - 4x - 12 = 0 \Rightarrow (x-6)(x+2) \Rightarrow \frac{q}{r} = \frac{-12}{-4} = \frac{3}{1}$ ✓

د) $x^2 - 6x - 28 = 0 \Rightarrow (x-14)(x+2) \Rightarrow \frac{q}{r} = \frac{-28}{-6} = \frac{14}{3}$ ✓

الف) $(x-7)(x+2) \Rightarrow x < -2$ ✓

ب) $x^2 + 4x + 6 = 0 \Rightarrow (x+2)(x+3) \Rightarrow x < -3$ ✓

ج) $4 - 12 = -8 \Rightarrow \Delta < 0 \Rightarrow$ ریشه ندارد ✓

د) $9 + 28 = 37 \Rightarrow x < \frac{-3 + \sqrt{37}}{2}$ ✓

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

$B^c = \{(2,2), (2,3), (3,2), (3,3)\}$ ✓

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

ب) $m^2 = m+2 \Rightarrow m^2 - m - 2 = 0 \Rightarrow (m-2)(m+1) \Rightarrow$ $m \in \{1, 2\}$ ✓

$a^2 = 3a - 2 \Rightarrow a^2 - 3a + 2 = 0 \Rightarrow (a-2)(a-1) \Rightarrow$ $a \in \{1, 2\}$ ✓

$2a+b=8 \quad a+b=0 \Rightarrow \begin{cases} 2a+b=8 \\ a+b=0 \end{cases} \Rightarrow a=8 \quad b=-8 \quad a \times b = -64$ ✓

$2K-3=8-3K \Rightarrow 5K=11 \Rightarrow K=\frac{11}{5}$ ✓

الف) $y(y^2-6) = (x-1)(x-3) \Rightarrow x=1 \Rightarrow y(y^2-6)=0 \Rightarrow y < \frac{\sqrt{6}}{\sqrt{6}} \Rightarrow$ تابع نیست ✓

ب) $\rightarrow x=0 \Rightarrow |y|=3 \Rightarrow y=\pm 3 \Rightarrow$ تابع نیست ✓

ج) $\rightarrow \cos x = \frac{1}{4} \Rightarrow |y| = \sqrt{\frac{1}{4}} \Rightarrow y = \pm \frac{1}{2} \Rightarrow$ تابع نیست ✓

د) $y^2 + (x+1)^2 = 0 \Rightarrow \begin{cases} y=0 \\ x=-1 \end{cases} \Rightarrow$ یک نقطه است ✓

Subject:

Year:

Month:

Day:

الف) $\sqrt[3]{y} = -x^2 + 2x - 2 \Rightarrow y = (-x^2 + 2x - 2)^3 \rightarrow y_1 = y_2 =$ تابع است ✓

ب) $\left. \begin{aligned} y_1^3 + 2y_1 &= 2x \\ y_2^3 + 2y_2 &= 2x \end{aligned} \right\} y_1^3 - y_2^3 + 2(y_1 - y_2) = 0 \Rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 2) = 0 \Rightarrow y_1 = y_2$ تابع است ✓
 پس این باید باشد همیشه

الف) $x \sin y = y \sin x \Rightarrow x = 0 \Rightarrow 0 \sin y = y \cdot 0$ تابع نیست ✗ $\rightarrow$ می تواند چیزی باشد

ب) $\sqrt{\frac{x}{y}} = a, \sqrt{\frac{y}{x}} = \frac{1}{a} \Rightarrow a + \frac{1}{a} = 2 \Rightarrow a^2 + 1 - 2a = 0 \Rightarrow (a-1)^2 = 0 \Rightarrow a = 1 \Rightarrow \frac{x}{y} = 1$
 $x = y \Rightarrow$ تابع است ✓

($x, y \neq 0$) یادت نره!

(۱۰-ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2$

این عبارت تنها زمانی برقرار است که $\sqrt{\frac{x}{y}} = 1$ باشد پس

$\sqrt{\frac{x}{y}} = 1 \leadsto \frac{x}{y} = 1 \leadsto x = y$ و $(x, y \neq 0)$

