

الف) $7x^2 - 5x - 6 = 0 \rightarrow x^2 - 5x - 24 = 0$

$$(x-9)(x+3) = 0 \rightarrow \begin{matrix} \frac{9}{6} \\ \frac{-3}{6} \end{matrix} \rightarrow \begin{matrix} \frac{3}{2} \\ -1 \end{matrix}$$

ب) $2x^2 - 1x - 3 = 0$

$$x^2 - 1x - 9 = 0$$

$$(x-9)(x+1) = 0 \rightarrow \frac{9}{3} = \boxed{3}, \boxed{\frac{-1}{3}}$$

2) $5x^2 - 4x - 3 = 0$

$$x^2 - 4x - 12 = 0$$

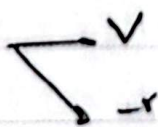
$$(x-6)(x+2) = 0 \rightarrow \frac{6}{2} = \boxed{3}, \frac{-2}{2} = \boxed{\frac{1}{2}}$$

> $2x^2 - 4x - 12 = 0$

$$x^2 - 2x - 6 = 0$$

$$(x-1)(x+3) = 0 \rightarrow \frac{1}{1} = \boxed{1}, \boxed{\frac{-3}{1}}$$

الف) $x^2 - \underset{\downarrow s}{4}x - \underset{\downarrow p}{12} = 0$



ب) $2x^2 + 4x + 2 = 0$

$$x^2 + 2x + 1 = 0 \rightarrow -2, -1 \rightarrow \frac{-2}{2}, \frac{-1}{2}$$

2) $x^2 + 2x + 2 = 0 \rightarrow \Delta = 4 - 12 = -8 < 0 \rightarrow$ بسیار اندک

> $3x^2 + 2x - 2 = 0 \rightarrow \Delta = 4 + 24 = 28$

$$x = \frac{-2 \pm \sqrt{28}}{6} = \frac{-1 \pm \sqrt{7}}{3}$$

$$1. A \times B = B \times A$$

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

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

$$4. m^r = m + r$$

$$7. m^r - m - r = 0$$

$$8. (m - r)(m - 1) = 0$$

$$9. \begin{matrix} (r) \times \\ (-1) \checkmark \end{matrix} \rightarrow \boxed{m = -1}$$

$$10. (r, 1), (1, r)$$

$$5. m^r = m + r$$

$$7. m^r - m - r = 0$$

$$\boxed{m = r}$$

$$m = -1 \times$$

$$(-1, 2), (2, -1)$$

1/2

$$12. a^r = r a - r$$

$$13. a^r - r a + r = 0$$

$$14. (a - 1)(a - r) \rightarrow \boxed{r \checkmark}$$

$$1 \times \rightarrow (1, 1), (1, 2)$$

15

$$16. f(x) = \begin{cases} x^{r-1} & x, r \\ a x + b & 1 \leq x \leq r \\ x^r & x > r \end{cases} \begin{matrix} n=1 \\ n=r \end{matrix} \begin{matrix} a+b=0 \rightarrow \boxed{b=-a} \\ r a + b = 1 \\ \boxed{b=1-ra} \end{matrix}$$

19

$$20. 1 - r a = -a \rightarrow 1 - a = 0 \rightarrow \boxed{a = 1}$$

21

$$22. f(x) = \begin{cases} r x - r & x \geq r \\ r - r x & x \leq r \end{cases} \begin{matrix} x = r \\ x = r \end{matrix} \rightarrow \begin{matrix} r x - r = r - r x \\ a x = v \end{matrix}$$

23

24

$$\boxed{x = \frac{v}{a}}$$

الف) $y^2 - 4y = x^2 - 4x + 3$

تایید $x \rightarrow$ بین آزمون اول: $(-)$ رد شد

رد شد دوم: $x=0 \rightarrow y^2 - 4y = 3 \rightarrow y(y^2 - 4) = 3$
 $\pm \sqrt{4}$

رد شد سوم: $(x_1, y_1) \xrightarrow{x_1 \neq x_2} y_1^2 - 4y_1 = y_2^2 - 4y_2 = 3$
 $y_1^2 - y_2^2 = 4(y_1 - y_2)$

$(y_1 - y_2)(y_1 + y_2 + y_1 y_2) = 4(y_1 - y_2)$

$y_1 \neq y_2 \rightarrow y_1^2 + y_2^2 + y_1 y_2 = 4$
 $x(y_1^2 + y_2^2 + y_1 y_2 - 4) = 0$

$y_1 = \frac{-y_2 \pm \sqrt{y_2^2 + 4y_2}}{2} \rightarrow \frac{-y_2 - 4y_2}{2} = \frac{-5y_2}{2}$
 $\frac{-y_2 + 4y_2}{2} = \frac{3y_2}{2}$

رد شد اول: $|x| + |y| = 3 \xrightarrow{x=0} |y| = 3 \rightarrow y = \pm 3$

رد شد دوم: $|y| = -|x| \rightarrow y = x$
 $y = -x$

2) $|y| = \sqrt{1 - \cos x} \rightarrow 0$ تایید
 $|y| = \sqrt{\frac{1}{r}}$
 $y = \pm \frac{1}{\sqrt{r}}$

>) $y^2 + x^2 + 2x + 1 = 0$

$(x+1)^2 + y^2 = 0$ $\begin{matrix} \text{منفی} & \text{منفی} \end{matrix} \rightarrow 0$ $\begin{matrix} 1 \\ 0 \end{matrix}$ نقطه $\rightarrow$ تایید

Subject:

Year: Month: Day: ()

الف) $\sqrt{y} + x^2 = 2x - 2 \quad x_1 = x_2$ - 9

$$\sqrt{y} = -x^2 + 2x - 2 \quad (x_1, y_1), (x_2, y_2) \rightarrow \sqrt{y_1} = \sqrt{y_2}$$

$$y_1^{\frac{1}{2}} = y_2^{\frac{1}{2}}$$

$$\boxed{y_1 = y_2}$$

ب) $\left. \begin{aligned} y_1^2 + 2y_1 &= 2x_1 \\ y_2^2 + 2y_2 &= 2x_2 \end{aligned} \right\} x_1 = x_2 \rightarrow y_1^2 + 2y_1 = y_2^2 + 2y_2$

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

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

$y_1 \neq y_2$ $\rightarrow x(y_1^2 + y_1 y_2 + y_2^2) + 2 = 0 \rightarrow \Delta = y_2^2 - 4(y_1^2 + 2)$

$$= y_2^2 - 4y_1^2 - 8$$

$$\Delta = -4y_1^2 - 8 < 0 \rightarrow \text{بسته ندارد}$$

✓ پس فرض ما $y_1 = y_2$ فقط می شود

الف) $x \sin y = y \sin x$ - 6

$$x=0 \rightarrow 0 = y \sin 0$$

همیشه عددی متناهی باشد

ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \xrightarrow{\text{جواب}} \frac{x}{y} + \frac{y}{x} + 1 = 2$

$$\frac{x^2 + y^2}{xy} = 1$$

$$x^2 + y^2 - xy = 0$$

$$(x - y)^2 = 0$$

 $\rightarrow$ $\boxed{x = y}$