

۱۸,۷۵

الف) $x^2 - 4x + 8 = 0$

$x^2 - 4x + 9 = 1$

$(x-2)^2 = 1$

$x-2 = \pm 1 \Rightarrow \begin{cases} x=3 \\ x=1 \end{cases}$

ب) $x^2 + 8x + 7 = 0$

$x^2 + 8x + 14 = 9$

$(x+4)^2 = 9$

$x+4 = \pm 3 \Rightarrow \begin{cases} x=-7 \\ x=-1 \end{cases}$

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الف) $x^2 - 5x + 4 = 0$

$x=4 \quad x=1$

$(x-4)(x-1)=0 \Rightarrow \begin{cases} x_1=4 \\ x_2=1 \end{cases}$

ب) $x^2 - 5x - 14 = 0$

$x=7 \quad x=-2$

$(x-7)(x+2)=0 \Rightarrow \begin{cases} x_1=7 \\ x_2=-2 \end{cases}$

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راه حل؟

الف) $x^2 - 2x - 5 = 0$

$x = \frac{2 \pm \sqrt{29}}{2}$

$x = \frac{2 - \sqrt{29}}{2}$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

ب) $2x^2 - 4x + 1 = 0$

$x = \frac{4 \pm \sqrt{12}}{4}$

$x = \frac{4 - \sqrt{12}}{4}$

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الف) $x^2 - 3x + 2 = 0$

$x=1 \quad x=2$

$(x-1)(x-2)=0$

$x=1 \quad x=2$

ب) $4x^2 + x - 2 = 0$

$x^2 + x - 1/2 = 0$

$x = \frac{1}{2} \quad x = -1$

$\frac{x}{2} = \frac{1}{2} \Rightarrow x=1$
 $-\frac{x}{2} = -1 \Rightarrow x=2$

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الف) $5x^2 - 12x + 7 = 0$

$x^2 - 12/5x + 7/5 = 0$

$\frac{v}{5} = \frac{v}{5}$

$x = \frac{v}{5} \quad x=1$

$\frac{v}{5} = 1$

ب) $2x^2 - 10x + 7 = 0$

$x^2 - 5x + 7/2 = 0$

$\frac{x}{2} = 1$

$\frac{v}{2} = \frac{v}{2}$

$x=1 \quad x = \frac{v}{2}$

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الف) $-2x^2 + 5x - 1 = 0$

$\sqrt{b^2 - 4ac} \rightarrow 25 - 12 = 13 \Rightarrow$ ریشه ها

ب) $2x^2 - 4x + 2 = 0$

$\sqrt{b^2 - 4ac} \rightarrow 16 - 16 = 0 \Rightarrow$ ریشه مضاعف

ب) $2x^2 - x + 2 = 0$

$\sqrt{b^2 - 4ac} \rightarrow 1 - 16 = -15 \Rightarrow$ ریشه حقیقی ندارد

ب) $2x^2 - x + 1 = 0$

$\sqrt{b^2 - 4ac} \rightarrow 1 - 8 = -7 \Rightarrow$ ریشه حقیقی ندارد

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$$x^2 - 2x + a = 0$$

$$\sqrt{b^2 - 4ac}$$

$$\begin{aligned} \Delta &\geq 0 \\ 4 - 4a &\geq 0 \\ 1 &\geq a \\ a &\leq 1 \end{aligned}$$

$$\begin{aligned} \Delta &= 4 - 4a \\ 4 - 4a &\geq 0 \\ 1 &\geq a \\ a &\leq 1 \end{aligned}$$

$$\begin{aligned} \Delta &= 0 \\ 4 - 4a &= 0 \\ 1 &= a \\ a &= 1 \end{aligned}$$

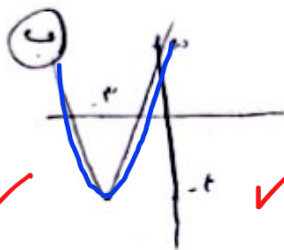
$$\begin{aligned} \Delta &< 0 \\ 4 - 4a &< 0 \\ a &> 1 \end{aligned}$$

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✓

$$y = x^2 + 4x + 5$$

$$\begin{aligned} \text{Min} & \left| \begin{aligned} -\frac{b}{2a} &= -\frac{4}{2} = -2 \\ 4 - 16 + 5 &= -7 \end{aligned} \right. \end{aligned}$$



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$$y = -x^2 + 6x - 5$$

$$\begin{aligned} \text{Max} & \left| \begin{aligned} -\frac{b}{2a} &= -\frac{6}{-2} = 3 \\ -9 + 18 - 5 &= 4 \end{aligned} \right. \end{aligned}$$

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$$\begin{aligned} \text{Max} & \left| \begin{aligned} -\frac{b}{2a} &= -\frac{6}{-2} = 3 \\ -9 + 18 - 5 &= 4 \end{aligned} \right. \end{aligned}$$

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$$x^2 - 2x - 3 = 0$$

$$S = -\frac{b}{a} \rightarrow \frac{2}{1} = 2$$

$$P = \frac{c}{a} \rightarrow \frac{-3}{1} = -3$$

$$\begin{aligned} S^2 - 2P &= 4 - 2(-3) = 10 \\ S^2 - 2SP &= 4 - 2(2)(-3) = 20 \end{aligned}$$

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