

نام و نام خانوادگی	پاسخنامه تشریحی تکلیف شماره ۲۰	کلاس دهم ریاضی
الف) $\min = \left \frac{-b}{2a} = \frac{-5}{-2} = -\frac{5}{2} \right $ $y = x^2 + 4x + 5$ $= 9 - 16 + 5$ $y = -1$	$\min = \left \frac{-3}{-4} \right $ $y = x^2 + 4x + 5$ $= 9 - 16 + 5$ $y = -1$	الف) $\min = \left \frac{-3}{-4} \right $ $y = x^2 + 4x + 5$ $= 9 - 16 + 5$ $y = -1$
ب) 	ب) 	ب) 
الف) $y = -x^2 + 3x - 3$ $= -x^2 + 3x - 3$ $y = 1$	الف) $y = -x^2 + 3x - 3$ $= -x^2 + 3x - 3$ $y = 1$	الف) $y = -x^2 + 3x - 3$ $= -x^2 + 3x - 3$ $y = 1$
ب) $-1(-x^2 + 3x - 3) = 0$ $x^2 - 3x + 3 = 0$ $(x-1)(x-2) = 0$ $x = 1$ $x = 2$	ب) $-1(-x^2 + 3x - 3) = 0$ $x^2 - 3x + 3 = 0$ $(x-1)(x-2) = 0$ $x = 1$ $x = 2$	ب) $-1(-x^2 + 3x - 3) = 0$ $x^2 - 3x + 3 = 0$ $(x-1)(x-2) = 0$ $x = 1$ $x = 2$
الف) $2x^2 - 3x + a = 0$ $\Delta = b^2 - 4ac = 9 - 4 \times 2 \times a = 9 - 8a$ $9 - 8a > 0$ $-8a > -9$ $a > \frac{9}{8}$	الف) $2x^2 - 3x + a = 0$ $\Delta = b^2 - 4ac = 9 - 4 \times 2 \times a = 9 - 8a$ $9 - 8a > 0$ $-8a > -9$ $a > \frac{9}{8}$	الف) $2x^2 - 3x + a = 0$ $\Delta = b^2 - 4ac = 9 - 4 \times 2 \times a = 9 - 8a$ $9 - 8a > 0$ $-8a > -9$ $a > \frac{9}{8}$
ب) $9 - 8a < 0$ $-8a < -9$ $a < \frac{9}{8}$	ب) $9 - 8a < 0$ $-8a < -9$ $a < \frac{9}{8}$	ب) $9 - 8a < 0$ $-8a < -9$ $a < \frac{9}{8}$
الف) $x^2 - 2x - 1 = 0$ $x^2 - 2x - 1 + 2 = 2$ $(x-1)^2 = 2$ $x-1 = \sqrt{2} \rightarrow x = \sqrt{2} + 1$ $x-1 = -\sqrt{2} \rightarrow x = -\sqrt{2} + 1$	الف) $x^2 - 2x - 1 = 0$ $x^2 - 2x - 1 + 2 = 2$ $(x-1)^2 = 2$ $x-1 = \sqrt{2} \rightarrow x = \sqrt{2} + 1$ $x-1 = -\sqrt{2} \rightarrow x = -\sqrt{2} + 1$	الف) $x^2 - 2x - 1 = 0$ $x^2 - 2x - 1 + 2 = 2$ $(x-1)^2 = 2$ $x-1 = \sqrt{2} \rightarrow x = \sqrt{2} + 1$ $x-1 = -\sqrt{2} \rightarrow x = -\sqrt{2} + 1$
ب) $x^2 - x - 1 = 0$ $x^2 - x - 1 + \frac{1}{4} = \frac{5}{4}$ $x^2 - x + \frac{1}{4} = \frac{5}{4}$ $(x - \frac{1}{2})^2 = \frac{5}{4}$ $x - \frac{1}{2} = \pm \sqrt{\frac{5}{4}}$ $x = \frac{1}{2} \pm \frac{\sqrt{5}}{2}$ $x = \frac{1 + \sqrt{5}}{2}$ $x = \frac{1 - \sqrt{5}}{2}$	ب) $x^2 - x - 1 = 0$ $x^2 - x - 1 + \frac{1}{4} = \frac{5}{4}$ $x^2 - x + \frac{1}{4} = \frac{5}{4}$ $(x - \frac{1}{2})^2 = \frac{5}{4}$ $x - \frac{1}{2} = \pm \sqrt{\frac{5}{4}}$ $x = \frac{1}{2} \pm \frac{\sqrt{5}}{2}$ $x = \frac{1 + \sqrt{5}}{2}$ $x = \frac{1 - \sqrt{5}}{2}$	ب) $x^2 - x - 1 = 0$ $x^2 - x - 1 + \frac{1}{4} = \frac{5}{4}$ $x^2 - x + \frac{1}{4} = \frac{5}{4}$ $(x - \frac{1}{2})^2 = \frac{5}{4}$ $x - \frac{1}{2} = \pm \sqrt{\frac{5}{4}}$ $x = \frac{1}{2} \pm \frac{\sqrt{5}}{2}$ $x = \frac{1 + \sqrt{5}}{2}$ $x = \frac{1 - \sqrt{5}}{2}$
الف) $x^2 - 2x - 1 = 0$ $\Delta = b^2 - 4ac = 4 + 4 = 8$ $x = \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$ $x = 1 + \sqrt{2}$ $x = 1 - \sqrt{2}$	الف) $x^2 - 2x - 1 = 0$ $\Delta = b^2 - 4ac = 4 + 4 = 8$ $x = \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$ $x = 1 + \sqrt{2}$ $x = 1 - \sqrt{2}$	الف) $x^2 - 2x - 1 = 0$ $\Delta = b^2 - 4ac = 4 + 4 = 8$ $x = \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$ $x = 1 + \sqrt{2}$ $x = 1 - \sqrt{2}$
ب) $x^2 + x - 4 = 0$ $\Delta = b^2 - 4ac = 1 + 16 = 17$ $x = \frac{-1 \pm \sqrt{17}}{2}$ $x = \frac{-1 + \sqrt{17}}{2}$ $x = \frac{-1 - \sqrt{17}}{2}$	ب) $x^2 + x - 4 = 0$ $\Delta = b^2 - 4ac = 1 + 16 = 17$ $x = \frac{-1 \pm \sqrt{17}}{2}$ $x = \frac{-1 + \sqrt{17}}{2}$ $x = \frac{-1 - \sqrt{17}}{2}$	ب) $x^2 + x - 4 = 0$ $\Delta = b^2 - 4ac = 1 + 16 = 17$ $x = \frac{-1 \pm \sqrt{17}}{2}$ $x = \frac{-1 + \sqrt{17}}{2}$ $x = \frac{-1 - \sqrt{17}}{2}$

$$\text{الف) } x^2 - 11x + 21 = 0$$

$$(x-4)(x-7) = 0 \rightarrow \begin{cases} x=4 \\ x=7 \end{cases} \checkmark$$

(2)

$$\text{ب) } x^2 + 3x - 21 = 0$$

$$(x-4)(x+7) = 0 \rightarrow \begin{cases} x=4 \\ x=-7 \end{cases} \checkmark$$

$$\text{الف) } \Delta x^2 - 12x + 7 = 0$$

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

$$(x-5)(x-1) = 0 \rightarrow \begin{cases} x = \frac{\Delta}{\Delta} = 1 \\ x = \frac{7}{2} \end{cases} \checkmark$$

(2)

$$\text{ب) } 3x^2 - 10x + 7 = 0$$

$$x^2 - 10x + 21 = 0$$

$$(x-3)(x-7) = 0 \rightarrow \begin{cases} x = \frac{10}{3} = 1 \\ x = \frac{7}{3} \end{cases} \checkmark$$

(از مجموع ضرایب هم می شود رفت)

$$\text{الف) } (x^2 - 5x + 3 = 0)$$

$$4x^2 - 10x + 4 = 0$$

$$(2x-1)(2x-4) = 0 \rightarrow \begin{cases} 2x-1=0 \\ 2x-4=0 \end{cases} \rightarrow \begin{cases} x=\frac{1}{2} \\ x=2 \end{cases}$$

(از مجموع ضرایب هم می شود رفت)

$$\text{2) } 2x^2 - 5x + 1 = 0$$

$$\Delta = b^2 - 4ac = 25 - 4 = 21 \checkmark$$

$$x = \frac{5 \pm \sqrt{21}}{4} = \frac{5 \pm \sqrt{21}}{4} \rightarrow \begin{cases} x = \frac{5 + \sqrt{21}}{4} \\ x = \frac{5 - \sqrt{21}}{4} \end{cases}$$

(2)

$$\text{ب) } 2x^2 + 5x + 3 = 0$$

$$x^2 + 5x + 3 = 0$$

$$(x+2)(x+3) = 0 \rightarrow \begin{cases} x = -2 \\ x = -3 \end{cases}$$

(از مجموع ضرایب هم می شود رفت)

$$\text{3) } x^2 + 7x + 4 = 0$$

$$\Delta = b^2 - 4ac = 49 - 16 = 33$$

مقدار جواب ندارد $\Delta < 0$

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

(2)

$$\text{الف) } S^2 - 2P = \left(\frac{-b}{a}\right)^2 - 2\left(\frac{c}{a}\right) = 9 - 2\left(\frac{-7}{1}\right) = 9 + 14 = 23$$

$$\text{ب) } S^2 - 3SP = 27 + 14 = 41 \checkmark$$

$$S = \frac{-b}{a} = \frac{+3}{1} = +3 \quad P = \frac{c}{a} = \frac{-7}{1} = -7$$

$$\text{الف) } \begin{pmatrix} 5 \\ 9 \end{pmatrix} + \begin{pmatrix} 9 \\ 7 \end{pmatrix} = \begin{pmatrix} 14 \\ 16 \end{pmatrix} = \frac{14 \times 4}{4} + \frac{16 \times 4}{4} = 14 + 16 = 30$$

(2)

$$\text{ب) } \begin{pmatrix} 9 \\ 13 \end{pmatrix} - \begin{pmatrix} 4 \\ 7 \end{pmatrix} = \frac{9 \times 4}{4} - \frac{4 \times 7}{4} = 9 - 7 = 2$$