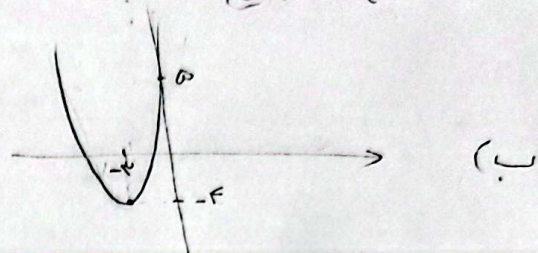


19/5

نام و نام خانوادگی بابا سبائی پاسخنامه تشریحی تکلیف شماره 1... کلاس شنبه

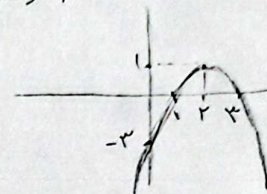
الف) $y = x^2 + 4x + 5 \rightarrow a > 0 \rightarrow \min$ $\left| \frac{-b}{2a} \rightarrow \frac{-4}{2} = -2 \right.$
 $\left. \begin{array}{l} \text{عرض سب} \\ x=0 \end{array} \right\} y=5$ $\left. \begin{array}{l} y \\ \min \end{array} \right\} (-2, -4)$
 $y = 3^2 - 4 \cdot 3 + 5 = 0$



1

ب) $y = -x^2 + 4x - 3 \rightarrow a < 0 \rightarrow \max$ $\left| \frac{-b}{2a} \rightarrow \frac{-4}{-2} = 2 \right.$
 $\left. \begin{array}{l} \text{عرض سب} \\ x=0 \end{array} \right\} y=-3$ $\left. \begin{array}{l} y \\ \max \end{array} \right\} 1$

مور $-x$ قطع
 $y=0 \Rightarrow -x^2 + 4x - 3 = 0$
 $-(x^2 - 4x + 3) = 0$
 $-(x-1)(x-3) = 0$
 $x=1, x=3 \rightarrow (1, 0), (3, 0)$ نقاط



2

الف) $2x^2 - 3x + a = 0 \Rightarrow x^2 - \frac{3}{2}x + \frac{a}{2} = 0$ $\Delta > 0 \rightarrow 9 - 1a > 0 \rightarrow -1a > -9 \rightarrow 1a < 9 \rightarrow a < \frac{9}{1}$
 $b^2 - 4ac = 1$ $\Delta = 0 \rightarrow 9 - 1a = 0 \rightarrow 1a = 9 \rightarrow a = \frac{9}{1}$
 $\Delta < 0 \rightarrow 9 - 1a < 0 \rightarrow -1a < -9 \rightarrow 1a > 9 \rightarrow a > \frac{9}{1}$

3

د) $\Delta \geq 0 \rightarrow 9 - 1a \geq 0 \rightarrow 1a \leq 9 \rightarrow a \leq \frac{9}{1}$

الف) $x^2 - 2x - 1 = 0 \xrightarrow{+1} x^2 - 2x + 1 = 2 \Rightarrow (x-1)^2 = 2 \Rightarrow x-1 = \pm \sqrt{2}$

$x_1 = \sqrt{2} + 1$
 $x_2 = -\sqrt{2} + 1$

4

ب) $x^2 - x - 1 = 0 \xrightarrow{+\frac{1}{4}} x^2 - x + \frac{1}{4} = \frac{5}{4} \Rightarrow (x - \frac{1}{2})^2 = \frac{5}{4}$
 $x - \frac{1}{2} = \pm \sqrt{\frac{5}{4}} \Rightarrow x_1 = \frac{1}{2} - \sqrt{\frac{5}{4}}, x_2 = \frac{1}{2} + \sqrt{\frac{5}{4}}$

الف) $x^2 - x - 1 = 0$ $\Delta = b^2 - 4ac = 1 + 4 = 5$ $x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{1 \pm \sqrt{5}}{2}$

$\frac{1 \pm \sqrt{5}}{2} \rightarrow \frac{1 + \sqrt{5}}{2} = x_1, \frac{1 - \sqrt{5}}{2} = x_2$

5

ب) $x^2 + x - 4 = 0$ $\Delta = b^2 - 4ac = 1 + 16 = 17$ $x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-1 \pm \sqrt{17}}{2}$

الف) $x^2 - 11x + 28 = 0$ $(x-4)(x-7) = 0$ $x=4, x=7$

ب) $x^2 + 3x - 28 = 0$ $(x+7)(x-4) = 0$ $x=-7, x=4$

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الف) $5x^2 - 12x + 7 = 0 \Rightarrow x^2 - 12x + 35 = 0 = (x-5)(x-7) = 0$

$x=5, x=7$

$\Rightarrow x = \frac{5}{5} = 1$ و $x = \frac{7}{5}$

٥

ب) $4x^2 - 10x + 7 = 0 \Rightarrow x^2 - 10x + 21 = 0 = (x-3)(x-7) = 0$

$x=3, x=7$

$\Rightarrow x = \frac{3}{4} = 0.75$ و $x = \frac{7}{4} = 1.75$

الف) $2x^2 - 5x + 3 = 0 \Rightarrow x^2 - 5x + 4 = 0 = (x-3)(x-2) = 0$ $a+b+c=0 \rightarrow \frac{c}{a} = \frac{3}{2}$

$x=3, x=2 \Rightarrow x = \frac{3}{2} = 1.5$ و $x = \frac{2}{2} = 1$

ب) $2x + 5x + 3 = 0 \Rightarrow a+c=2b \rightarrow -1=x$

ج) $2x^2 - 5x + 1 = 0 \Rightarrow \Delta = 25 - 4 = 17$

$x = \frac{5 \pm \sqrt{17}}{4}$

د) $4x^2 + 7x + 9 = 0 \Rightarrow \Delta = 49 - (4 \times 4 \times 9) = -95$

$\Delta < 0 \Rightarrow$ جواب ندارد

٥

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

$S = -\frac{-3}{1} = 3$

$S = -\frac{b}{a}$ ضرب $P = \frac{c}{a}$

$P = \frac{-2}{1} = -2$

الف) $S^2 - 2P = 9 + 4 = 13$

ب) $S^3 - 3SP = 27 + 12 = 9$

$27 - 3(3)(-2) = 27 + 12 = 39$

١, ٥

الف) $\begin{pmatrix} 1 \\ 2 \end{pmatrix} + \begin{pmatrix} 3 \\ 4 \end{pmatrix} = \frac{1 \times 4}{1 \times 3} + \frac{3 \times 1}{1 \times 3} = \frac{4}{3} + \frac{3}{3} = \frac{7}{3}$

٥

ب) $\begin{pmatrix} 9 \\ 3 \end{pmatrix} - \begin{pmatrix} 1 \\ 2 \end{pmatrix} = \frac{9 \times 2}{3 \times 3} - \frac{1 \times 2}{1 \times 3} = \frac{6}{3} - \frac{2}{3} = \frac{4}{3}$

١٠