Subject: Date: Sa Su Mo Tu We Th Fr

آیلا جعفری - تکلیف ۲۴ ام - دهم دختر A

۱-

الف) $y = 2x^2 - 4x + 1 \to \min$ | $-\frac{b}{2a} = \frac{4}{4} = 1$

$\Delta = b^2 - 4ac = 16 - 4(2)(1) = 8$ | $\frac{-\Delta}{4a} = \frac{-8}{8} = -1$

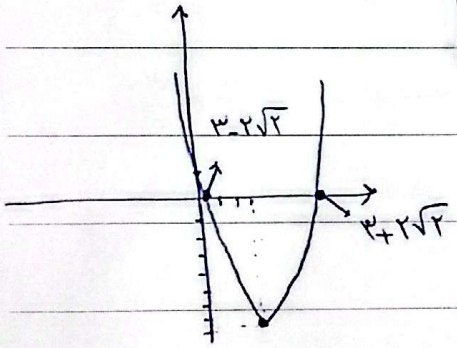
ب) $y = -2x^2 + 3x - 5 \to \max$ | $\frac{-b}{2a} = \frac{-3}{-4} = \frac{3}{4}$

$\Delta = b^2 - 4ac = 9 - 4(-2)(-5) = 49$ | $\frac{-\Delta}{4a} = \frac{-49}{-8} = \frac{49}{8}$

۲-

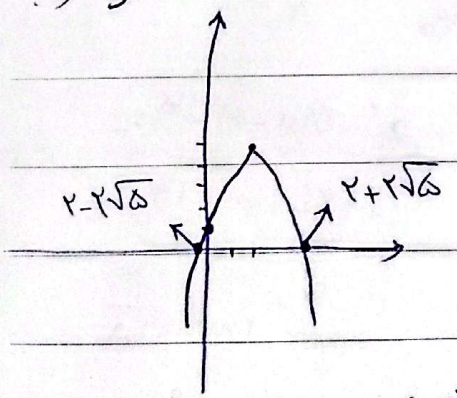
الف) $y = x^2 - 6x + 1 \to \min$ | $\frac{-b}{2a} = \frac{6}{2} = 3$, $x = 0 \to y = 1$

$\frac{\Delta}{4a} = -8$ $y = 0 \to x = 3 \pm 2\sqrt{2}$



ب) $y = -x^2 + 4x + 1 \to \max$ | $\frac{-b}{2a} = \frac{-4}{-2} = 2$, $x = 0 \to y = 1$

$\frac{-\Delta}{4a} = 5$ $y = 0 \to x = 2 \pm 2\sqrt{5}$



۳- ریشه‌ی $r_2 \to -\alpha\beta r_3 = (-2) r_3 = \frac{-1}{2} \to r_3 = \frac{-1}{4}$

$\xrightarrow{r_3 = \frac{-1}{4}} 4\left(-\frac{1}{64}\right) + k\left(\frac{1}{16}\right) + \frac{9}{4} - 2 = 0 \to (k = -3)$ ✓

Subject: Date: Sa Su Mo Tu We Th Fr

۴- $\sqrt{\alpha}-\sqrt{\beta}=1 \xrightarrow{\text{به توان ۲}} \alpha+\beta-2\sqrt{\alpha\beta}=1 \rightarrow S-2\sqrt{P}=1$

$\rightarrow S=\frac{-b}{a}=3m \quad , \quad P=\frac{c}{a}=m \rightarrow S-2\sqrt{P}=3m-2\sqrt{m}=1$

$\rightarrow \frac{c'}{a'}=\frac{-m}{2}=?$

$3m-2\sqrt{m}-1=0$

$\sqrt{m}$ / 1 ✓ $\Rightarrow m=+1 \Rightarrow 2x^2-x-1=0 \rightarrow \frac{c}{a}=\frac{-1}{2}$ ✓

$\sqrt{m}$ \ $-\frac{1}{3}$ ✗ غ ق ق

$\Leftarrow (3\sqrt{m}+1)(\sqrt{m}-1)=0$

۵- $y=2x^2-(m+2)x+m=0 \xrightarrow{a+b+c=0} x=1 \text{ و } m$

$\rightarrow S=\frac{1}{2}\left|m\left(\frac{m}{2}-1\right)\right|=\frac{3}{4} \rightarrow |m(m-2)|=3 \rightarrow$

$m=-1 \rightarrow \frac{m}{2}=-\frac{1}{2}$

$m=3 \rightarrow \frac{m}{2}=\frac{3}{2}$

$\Rightarrow$ ext $\left|\frac{-b}{2a}=\frac{m}{2}=\left(-\frac{1}{2}\right) \text{ و } \left(\frac{3}{2}\right)\right.$

۶- $\rightarrow \frac{-\Delta}{4a}=\frac{4ac-b^2}{4a}=\frac{4(a)(a)-9}{4a}=\frac{4a^2-9}{4a}=\frac{7}{8}$

$\rightarrow 32a^2-72=28a \rightarrow 32a^2-28a-72=0 \xrightarrow{\text{ریشه}} a^2-28a-2304=0$

$(a-64)(a+36)=0$

$a=64 \text{ و } \frac{-36}{32}$

$\Downarrow$

$a=\frac{-9}{8}$ و 2

$\Leftarrow$ ✓ 2 تعداد a ✗ غ ق ق

چون min می‌خواد

پس $a>0$ باید باشه

Subject: Date: Sa Su Mo Tu We Th Fr

۷- معادله اول $\to |\alpha-\beta| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{b^2-4ac}}{|a|} = \frac{\sqrt{a^2+1+2a-4a}}{|1|} = \frac{\sqrt{(a-1)^2}}{1} = 2$

$\Rightarrow |a-1| = 2 \to \begin{cases} a=3 \\ a=-1 \end{cases}$

معادله دوم $\to |\alpha'-\beta'| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{9a^2+1+2a-4b}}{1}$

$a=3 \to b=24 \to \frac{c}{a} = 3 \times 2$ اضلاع $\to$ ۲ و ۳ و ۴ ✓ (۲)

$a=-1 \to b=0 \to \frac{c}{a} = -1$ اضلاع $\to$ ۰ و ۱ و ۱ ✗ (۱)

۸- معادله اول $\to$ ext $\left| \frac{-a}{-2a} = \frac{1}{2} \right.$, $\left. \frac{a^2+11a}{4} \right|$

معادله دوم $\to$ ext $\left| \frac{b}{4b} = \frac{1}{4} \right.$, $\left. \frac{b-}{-8b} \right|$

$\to 2b\left(\frac{1}{4}\right) - b\left(\frac{1}{2}\right) - 1 = \frac{a}{4} + 2 \to a = -12$

$\to \frac{-a}{12} + \frac{a}{4} + 2 = \frac{-b}{8} - 1 \to b = -6$

$\Rightarrow b-a = 6$ ✓

۱۰- $\to S = a^2+b^2-12 = a+b$

$\to P = a+b-1 = ab$

$\to a^2+b^2 = (a+b)^2 - 2ab \to (a+b)^2 - 2(a+b-1) - 12 =$

$a+b$

$a+b = y \Rightarrow y^2 - 3y - 10 = 0 \to (y-5)(y+3) = 0$

$y = a+b = \begin{cases} = 5 \checkmark \\ = -3 \to \text{ق ق ق} \times \end{cases}$

چون a و b اعداد طبیعی هستند.

Subject: Date:

Sa Su Mo Tu We Th Fr

$\alpha\beta = \frac{\beta}{25\alpha} \Rightarrow \alpha^2 = \frac{1}{25} \rightarrow \alpha = \pm\frac{1}{5}$

$x = \alpha \rightarrow 25\alpha \times \frac{1}{25} + 5\alpha + \beta = 0 \rightarrow 5\alpha + \beta = 0 \rightarrow \beta = -5\alpha$ ... (4)

$y = 25\left(-\frac{1}{5}\right)x^2 + 5x + 1 = -5x^2 + 5x + 1$ $\Leftarrow$ $\alpha = -\frac{1}{5}$ $\beta > \alpha$

$\beta = 1$

ext: $\frac{-b}{2a} = \frac{-5}{-10} = 0.5$

$\frac{-D}{4a} = \frac{4ac - b^2}{4a} = \frac{-20}{-10} = \frac{-25 - 1}{-10} = \frac{-26}{-10} = 1.8$

$\Rightarrow$ (نامه اول) ✓