بنام خدا

زهرا سهرابی — ۱۸

۱)

الف) $y = 2x^2 - 4x + 1$ $ext \left| \begin{array}{l} \frac{-b}{2a} = \frac{4}{4} = 1 \\ \text{جای گذاری} \to -1 \end{array} \right.$ min دارد $ext \left| \begin{array}{l} 1 \\ -1 \end{array} \right.$

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ب) $y = -2x^2 + 3x - 5$ $ext \left| \begin{array}{l} \frac{-b}{2a} = \frac{-3}{-4} = \frac{3}{4} \\ -\frac{\Delta}{4a} = -\frac{(9-4(-2)(-5))}{-8} = \frac{-31}{8} \end{array} \right.$ max دارد $\left| \begin{array}{l} \frac{3}{4} \\ -\frac{31}{8} \end{array} \right.$

۲)

الف) $y = x^2 - 6x + 1$ (عرض از مبدأ) $a > 0 \to min$ $ext \left| \begin{array}{l} \frac{6}{2} = 3 \\ \text{جای گذاری} -8 \end{array} \right.$

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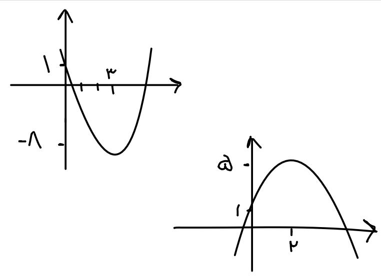
ب) $y = -x^2 + 4x + 1$ $a < 0 \to max$ $ext \left| \begin{array}{l} \frac{-b}{2a} = 2 \\ \text{جای گذاری } 5 \end{array} \right.$



۳)

$\alpha + \beta + \gamma = -\frac{k}{4}$ $\gamma = -\frac{1}{4}$ $1 - \frac{1}{4} = -\frac{k}{4} \to \frac{3}{4} = -\frac{k}{4} \to k = -3$

$\alpha \cdot \beta \cdot \gamma = \frac{2}{4}$

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۴)

$(\sqrt{\alpha} - \sqrt{\beta})^2 = 1^2 \to \alpha + \beta - 2\sqrt{\alpha\beta} = S - 2\sqrt{P}$ $3t^2 - 2t - 1 = 0$ $\sqrt{m} = t$

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

$\Delta = 4 - 4(3)(-1) = 16$

$t = \frac{2 \pm 4}{6}$ $\nearrow 1 \to \sqrt{1} = 1$ ✓ ; $\searrow -\frac{1}{3} \to \sqrt{-\frac{1}{3}}$ غیرقابل قبول

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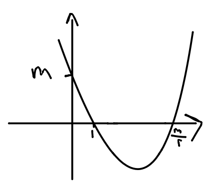
۵)

$y = 2x^2 - (m+2)x + m$ (a, b, c)

$a + b + c = 0$ $\left\{ \begin{array}{l} x = 1 \\ x = \frac{m}{2} \end{array} \right.$

$y = 2x^2 - (m+2)x + m$



حل پایین صفحه

~~$\text{مساحت} = \frac{3}{4} = \frac{1}{2} \times m \times (\frac{m}{2} - 1) = \frac{1}{2} m (\frac{m-2}{2}) \to \frac{m^2 - 2m}{4} = \frac{3}{4}$~~

$m^2 - 2m = 3$

$m^2 - 2m - 3 = 0$ -1 $-\frac{c}{a} = 3$

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$x = \frac{-b}{2a} = \frac{m+2}{4}$ $\nearrow \frac{1}{4}$; $\searrow \frac{5}{4}$

۶)

$y = ax^2 + 3x + a$ $ext \left| \begin{array}{l} \frac{-b}{2a} = \frac{-3}{2a} \\ -\frac{\Delta}{4a} = \frac{7}{8} \end{array} \right.$ min دارد $\to a > 0$

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$\frac{7}{8} = a(\frac{-3}{2a})^2 + 3(-\frac{3}{2a}) + a$

$\frac{7}{8} = \frac{9a}{4a^2} - \frac{9}{2a} + \frac{2a^2}{2a} \to \frac{9}{4a} - \frac{9 \times 2}{2a \times 2} + \frac{2a^2}{2a \times 2} = \frac{-9 + 4a^2}{4a} = \frac{7}{8} \to -72 + 32a^2 = 28a$

$32a^2 - 28a - 72 = 0 \xrightarrow{\div 4} 8a^2 - 7a - 18 = 0$

$a^2 - 7a - 144 = 0$

$(a+9)(a-16)$

$a = -\frac{9}{8}$ غ ق ق $\to a > 0$ min

$a = \frac{16}{8} = 2$

۸)

۹)

۱۰)

سوال ۵