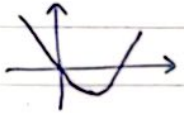


$y = 3x^2 - 2x \rightarrow \frac{-b}{2a} = \frac{1}{3} \rightarrow y = \frac{1}{3}$ $\Delta = \frac{1}{3}$ $\frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \frac{1}{3}$ (1)



نامی کوچک

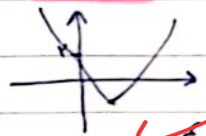
پ

$y = -x^2 + 4x \rightarrow \frac{-b}{2a} = \frac{-4}{-2} = 2$ $\Delta = 16$ $\frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow 2$ $\Delta = 16$ $\frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow 2$ $\frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow 2$



نامی در

$y = 2x^2 - 2x + 1 \rightarrow \frac{-b}{2a} = \frac{1}{2} \rightarrow$ عرض رأس $= \frac{-1}{2}$ $\Delta = 1$ $\frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \frac{1}{2}$ $\frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \frac{1}{2}$ (2)



نامی اول و دوم

$y = -x^2 + 4x - 1 \rightarrow \frac{-b}{2a} = 2 \rightarrow$ عرض رأس $= 3$ $\Delta = 12$ $\frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow 2$ $\frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow 2$ $\frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow 2$



نامی اول و دوم

$x^2 - x - 3 = 0 \rightarrow \alpha + \beta = 1$ (الف) $\frac{\alpha + \beta}{\alpha - \beta} = \frac{1 + \sqrt{13}}{2}$ $\frac{1 + \sqrt{13}}{2}$ $\frac{1 - \sqrt{13}}{2}$ $\alpha - \beta = \frac{1 + \sqrt{13} - 1 + \sqrt{13}}{2} = \frac{2\sqrt{13}}{2} = \sqrt{13}$ $\frac{1}{\sqrt{13}} = \frac{\sqrt{13}}{13}$ (3)

ب) $\alpha^2 + \beta^2 \rightarrow S^2 - 2P \rightarrow 1 - 2(-3) = 7$ ج) $\alpha^3 + \beta^3 \rightarrow S^3 - 3SP = 1 - 3(-3)(1) = 10$

د) $\alpha^3 - \beta^3 \rightarrow (\alpha - \beta)^3 + 3\alpha\beta(\alpha - \beta) = (\sqrt{13})^3 + 3(-3)(\sqrt{13}) = 5\sqrt{13}$

$x^2 - ax + a \rightarrow \Delta < 0 \rightarrow a^2 - 4a < 0 \rightarrow a(a - 4) < 0$ $\frac{0}{1} \quad \frac{4}{+}$ (4) $a \in (0, 4)$ $a = 4$ $a = 2$

$2\alpha^2 + \beta^2 - 4\alpha = 7 \rightarrow \alpha^2 + \beta^2 + \alpha^2 - 4\alpha = 7 \rightarrow 1 + \frac{2}{3}a + \frac{a}{3} \rightarrow a = -9$ $3\alpha^2 - 12\alpha - a = 0 \rightarrow \alpha^2 - 4\alpha = \frac{a}{3}$ $3\beta^2 - 12\beta = a = 0$

$3x^2 - 12x + 9 = 0 \rightarrow 3(x^2 - 4x + 3) = 0 \rightarrow \frac{4 \pm \sqrt{4}}{2} \rightarrow 3$ $\frac{4 \pm \sqrt{4}}{2} \rightarrow 1$ $\frac{4 \pm \sqrt{4}}{2} \rightarrow 1$

$\frac{-9}{3} = -3$ (5)

