عارف حاجی حیدری

9,75

Date Subject

(1) 2

$-\frac{\Delta}{4a} = 7 \Rightarrow \frac{-(b^2 - 4\times(-1)\times(-3))}{4\times(-1)} = 7 \Rightarrow b^2 = 16$

$b = \pm 4$

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(2) 1,75

الف) $x^2 = t \Rightarrow t^2 + 2t + 3 \Rightarrow \Delta < 0$ ریشه‌ای ندارد ✗

ب) $4 - x^2 = t \Rightarrow t^2 - 2t - 15 \Rightarrow (t-5)(t+3)$

$\hookrightarrow t = 5 , t = -3$

$4 - x^2 = 5 \Rightarrow x^2 = -1$ ✗ غ ق ق

$4 - x^2 = -3 \Rightarrow x^2 = 7 \Rightarrow x = \pm\sqrt{7}$ ← صفرهای تابع

$\alpha = 1, \beta = 3$ $m = 12$ $4x^2 - 16x + 12 = 0$ $\Delta > 0$ ✓

(3) 2

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(4) 0

$\frac{c}{a} = \frac{m-1}{3}$ ~~$= \alpha(2\alpha - 4)$~~

$\beta = 2\alpha - 4$

$\begin{cases}\alpha + \beta = 2 \\ 2\alpha - \beta = 4\end{cases} \rightarrow \alpha = 2, \beta = 0$

$m = 1$

$3x^2 - 6x = 0$ $\Delta > 0$ ✓

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(5) 2

$\frac{c}{a} = 1 = \frac{m^2 - 2}{-m}$ ← در صورت معکوس بودن ریشه‌ها

$\Rightarrow m^2 + m - 2 = 0 \Rightarrow m = 1 , m = -2$

ق ق ق $\hookleftarrow \Delta > 0$ ✓ | $\Delta = 0$ پس غ ق ق ✗

~~$\Rightarrow \Delta > 0 \Rightarrow 16 - 4\times -m(m^2-2) > 0$~~

~~$4m^3 + 4m$~~

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(6) 1,75

$\beta(\alpha\beta) = 4 \Rightarrow 3\beta = 4 \Rightarrow \beta = \frac{4}{3}$

$\frac{c}{a} = 3$

$\Rightarrow \frac{16}{9}\alpha = 4 \Rightarrow \alpha = \frac{9}{4}$ $x^2 - \frac{43x}{12} + 3$ $\Delta > 0$ ✓

$\alpha + \beta = m = \frac{9}{4} + \frac{4}{3} = \frac{27+16}{12} = \frac{43}{12}$ ← جواب سوال و مقدار m

$a_9 B \Rightarrow B = 3^{\alpha}$

$\frac{c}{a} \Rightarrow m = 3^{\alpha^2} \overset{\alpha=1}{\Rightarrow} m = 3$

$\Rightarrow 3^{\alpha} + \alpha = 12 \Rightarrow 3^{\alpha} + \alpha - 12 = 0 \Rightarrow \alpha = 1$

$\alpha(\alpha^2 - 7\alpha + 12 = 0) \Rightarrow \alpha^3 - 7\alpha^2 + 12\alpha = 0$

$(\alpha = \frac{2}{\beta})^3 \rightarrow \beta^3 = \frac{8}{\alpha^3}$ $\quad \alpha^3 + \frac{8}{\alpha^3}$ — $S^3 - 3SP = 91$

$\frac{-\Delta}{4a} = 91/25$

$-10t^2 + 50t - 0 \begin{cases} t = 0 \\ t = 5 \checkmark \end{cases}$

الف) $(x-1)^2 = 2x + 1 \Rightarrow$ ~~$4x - 2 = 5$~~ (بروش هندسی)

$\Rightarrow x^2 - 2x + 1 - 2x - 1 = 0 \Rightarrow x^2 - 4x = 0$

$\Rightarrow x(x-4) = 0 \rightarrow x = 0$ یا $x = 4$

ب) $x^2 + 2x = |x+2|$

$\rightarrow x + 2 = x^2 + 2x$

$x^2 + x - 2 = 0 \rightarrow x = 1$ یا $x = -2$

$\rightarrow x + 2 = -x^2 - 2$

$x^2 + 2 + 2 + x = 0 \Rightarrow x^2 + x + 4 = 0$

$\Rightarrow x(x+1) = 0 \rightarrow x = 0$ یا $x = -1$