$\alpha \to 0 = x^2 - 5x + 2 = 0$

$\beta \to 0 = \beta^2 - 5\beta + 2 = 0 \to \beta^2 = 5\beta - 2$

$S = \frac{-b}{a} = 5$ (۱)

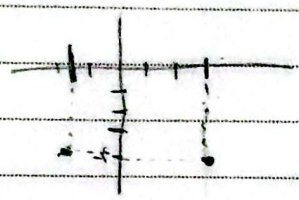
$\frac{4\alpha + (\beta^2)^2 \times \beta}{5\beta^2} = \frac{4\alpha + (5\beta - 2)^2 \times \beta}{5(5\beta - 2)} = \frac{4\alpha + (25\beta^2 + 4 - 20\beta)\beta}{25\beta - 10}$

$= \frac{4\alpha + 25\beta^3 + 4\beta - 20\beta^2}{25\beta - 10} = \frac{4(\alpha + \beta) + 25\beta^3 - 20\beta^2}{25\beta - 10} = \frac{24 + 25\beta^3 - 20\beta^2}{25\beta - 10} = \frac{4 + 5\beta^3 - 4\beta^2}{5\beta - 2}$

$= \frac{4 + 5(5\beta - 2)\beta - 4(5\beta - 2)}{5\beta - 2} = \frac{4 + 25\beta^2 - 10\beta - 20\beta + 8}{5\beta - 2} = \frac{12 + 25\beta^2 - 30\beta}{5\beta - 2}$

$\frac{25\beta - 12}{5\beta - 2} = 19$ (۱)

(۲)



دو نقطه هم عرض هستند پس x محور تقارن آن‌هاست.

این دو نقطه نسبت می‌آید.

$\frac{3 - 1/5}{2} = \frac{3}{4}$

میانگین یعنی جمع دو عدد تقسیم بر دو

و اگر x_1 و x_2 که ریشه‌های معادله‌ی هستند را هم میانگین بگیریم x محور تقارن همین $\left(\frac{3}{4}\right)$ بدست می‌آید پس

$S = \frac{3}{4} \times 2 = \boxed{\frac{3}{2}}$

(۳)

$\alpha - \beta = \frac{4}{c} k$

$\alpha + \beta = \frac{4}{1} k$

$\alpha + \beta = \frac{-b}{a} = -2k$

$\alpha - \beta = -2k$

$2\alpha = \frac{2}{3}k \to \boxed{\alpha = \frac{1}{3}k}$ $\boxed{\beta = \frac{-5k}{3}}$ $\Rightarrow \alpha \times \beta = \frac{5}{9}k^2$

$P = \frac{c}{a} = 5 = \frac{-5}{9}k^2 \to k^2 = 9$

$\frac{k^2}{2} = \left[\frac{9}{2}\right] = \boxed{4}$

Arman

زهرا ساداست حسینی

Subject:
Year: Month: Day:

(۴)

نقاط A و B ← هم‌عرض ← میانگین = طول رأس سهمی

$\frac{-5+3}{2} = \boxed{-1}$

مختصات رأس: $(-1,1) \longrightarrow y = a(x+1)^2+1 \longrightarrow y = ax^2+2ax+a+1$

$\alpha^2+\beta^2=5 \longrightarrow S^2-2P=5 \longrightarrow 4 - 2\frac{a+2}{a} = 5$

$S = \frac{-b}{a} = \frac{-2a}{a} = -2$

$P = \frac{c}{a} = \frac{a+1}{a}$

$-1 = \frac{2a+2}{a} \rightarrow -a = 2a+2 \rightarrow 3a = -2$

$a = \frac{-2}{3}$

$C = \frac{-2}{3}+1 = \boxed{\frac{1}{3}}$

(۵)

$x = \frac{-b \pm \sqrt{\Delta}}{2a} \longrightarrow \frac{-5 \pm \sqrt{25+4m}}{-2} < \frac{9}{2} \Rightarrow$

$0 < 25+4m < 16 \Longrightarrow \frac{-625}{100} < m < -\frac{225}{100} \Longrightarrow m = -3, -4, -5, -6$

۴ عدد

(۶)

$\frac{-\Delta}{4a} = 2 \rightarrow -\Delta = 8a \rightarrow 4ac - 8a = b^2 \Rightarrow 4a(c-2) = b^2 \Rightarrow$

$20m^2-12m-144=0 \overset{\div 4}{\Longrightarrow} 5m^2-3m-36=0 \Longrightarrow m^2-3m-18=0 \Rightarrow$

$(m-3)(5m+12)=0$

$\checkmark \boxed{m=3}$

$m = \boxed{\frac{-12}{5}}$ ✗ ← چون $a>0$ و تابع min داراست پس

$y = 3x^2-12x+14 \Rightarrow \frac{-b}{2a} = 2 \rightarrow \boxed{x=2}$

(۷)

$\alpha^2 = \alpha\beta$ واسطه هندسی

$\alpha^2 = P \rightarrow \alpha^2 = \frac{c}{a} \rightarrow \alpha^2 = 2\alpha-1 \rightarrow \alpha^2-2\alpha+1=0$

$(\alpha-1)^2=0$

$\boxed{\alpha=1}$

Arman

$x^4 - 7x^2 - 8 = 0 \rightarrow t^2 - 7t - 8 = 0 \Rightarrow t = \frac{7 \pm \sqrt{49}}{2}$

$x^2 = \frac{7 + \sqrt{49}}{2}$ ✓

$x^2 = \frac{7 - \sqrt{49}}{2}$ ✗

$x_1, x_2 = \pm\sqrt{\frac{7 + \sqrt{49}}{2}}$

$\sum_{z=0}$

چون ایشان قرینه اند

$P_2 = -\sqrt{\frac{(7+\sqrt{49})^2}{4}} = -\sqrt{\frac{118 + 14\sqrt{49}}{4}} \Rightarrow 2 \times \left(\frac{\sqrt{118 + 14\sqrt{49}}}{2}\right)^2 = 29 + 7\sqrt{49}$

(۹) قمرالسادات محسنی

$$e_{xt} = \frac{-b}{2a} \to \frac{4}{2k} = \frac{2}{k}$$

$$\frac{-\Delta}{4a} \to \frac{-24k-16}{4k} \to \frac{\not{4}(-6k-4)}{\not{4}k} = \frac{-6k-4}{k} \xrightarrow{\text{جایگذاری}} \frac{-6\times 2-4}{2} = \frac{-12-4}{2} = -8$$

$$\frac{-6k-4}{k} = \frac{-8}{k} - 4 \Longrightarrow \frac{\not{2}(-3k-2)}{\not{k}} = \frac{\not{2}(-4-2k)}{\not{k}} \Longrightarrow -k = -2 \Longrightarrow k = 2$$

(۵۱)

$-mx^2 + mx + 1 = -m - x \Rightarrow mx^2 - mx - x - m - 1 = 0 \Rightarrow \underline{mx^2 - x(m+1)} \underline{- m - 1}$

$\Delta < 0 \Rightarrow b^2 < 4ac \Rightarrow (m+1)^2 + 2m < -4m^2 - 4m \rightarrow 5m^2 + 6m + 1 < 0$

$(m+1)(5m+1) < 0$

$-1 \quad -\frac{1}{5}$

$+ \quad - \quad +$

$\Rightarrow \left(-1, -\frac{1}{5}\right)$

زهرا سادات حسینی