فاطمه موسوی

۱-

ext $\left| x = \frac{-b}{2a} = -1 \right.$ $\quad b = 2a$

$4a - \underset{2a}{b} + c = 9$ $\quad 9 = -a + c$ $\quad b = 2 \times -\frac{1}{2} = -1$

$9a + 3\underset{2a}{b} + c = 1$ $\quad - \; 1 = 15a + c$

$8 = -16a$ $\quad \boxed{a = -\frac{1}{2}}$

$-\frac{1}{2} + 1 + c = 9$

$c = 8/5$

$\boxed{-\frac{1}{2}x^2 - x + 8/5}$

۲-

$\Delta > 0$ $\quad P = \frac{c}{a} > 0$ $\quad S = \frac{-b}{a} > 0$

$b^2 - 4ac > 0$ $\quad \frac{m+4}{2} > 0$ $\quad \frac{-m}{2} > 0$

$m^2 - 4(2)(m+4)$ $\quad -4 < m$ $\quad m < 0$

$m^2 - 8m - 48$

$(m-12)(m+4) > 0$ $\quad -4 < m < -4$

$\begin{array}{ccccc} & -4 & & 12 & \\ + & | & - & | & + \end{array}$

٤ ٢ ٣

٣ - $\alpha + \beta = \frac{1}{\alpha\beta}$ ، $\frac{-b}{a} = \frac{a}{c}$ ، $\frac{-(٢م-١)}{٣} = \frac{٣}{-(م-٢)}$

٢م² - ٥م + ٢ = ٩ ⟵ (م - ٧)(م + ١) = ٠

م = ٧/٢

م = -٢/٢ = -١

(٢م - ١)² - ٤(٣)(٢ - م) > ٠

م = -١   ٩ - ٣٦ < ٠ ع

م = ٧/٢   ٣٦ + ١٨ > ٠ ✓

$x^{٢} - x - ٤ = ٠ \quad P = \frac{c}{a} = -٤ = x_{١} x_{٢} \quad S = \frac{-b}{a} = ١$

$$\left(x_{٢}^{٣} + \frac{1}{x_{١}}\right)\left(x_{١}^{٣} + \frac{1}{x_{٢}}\right) = x_{١}^{٣} x_{٢}^{٣} + x_{٢}^{٢} + x_{١}^{٢} + \frac{1}{x_{١} x_{٢}}$$

$(-٤)^{٣} \quad ١ - ٢(-٤) = ٩ \quad -٤$

$x_{٢}^{٢} + x_{١}^{٢} = S^{٢} - ٢P$

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$P = -٤٤ + ٩ - \frac{١}{٤} = -٥٥,٢٥ = \frac{c}{a}$

$S = x_2^3 + x_1^3 + \frac{1}{x_1} + \frac{1}{x_2} = ١٣ + (-\frac{١}{٤}) = ١٢,٧٥ = \frac{-b}{a}$

$x_2^3 + x_1^3 = (x_1 + x_2)^3 - ٣ x_1 x_2 (x_1 + x_2)$

$١ - ٣(-٤)(١) = ١٣$

$\frac{1}{x_1} + \frac{1}{x_2} = \frac{x_2 + x_1}{x_1 x_2} = \frac{١}{-٤}$

$x^2 - ١٢,٧٥ x - ٥٥,٢٥$

-٥

$\left(\sqrt[3]{x^2} + \frac{1}{\sqrt[3]{x^2}} + 1\right)\left(\sqrt[3]{x^2} - 1\right) \times \left(\sqrt[3]{x^2}\right) = ٢\sqrt[3]{x}\left(\sqrt[3]{x^2}\right)$

$\left(\sqrt[3]{x^4} + 1 + \sqrt[3]{x^2}\right)\left(\sqrt[3]{x^2} - 1\right) = ٢x$

$(x^2 - 1) = ٢x \qquad x^2 - 1 - ٢x = 0$

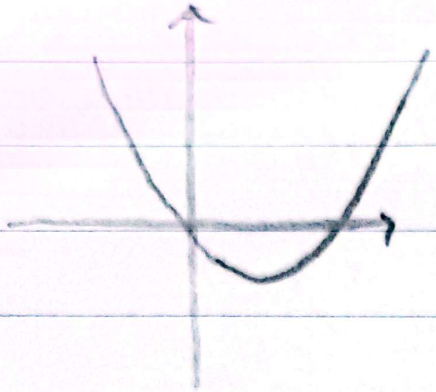
$\alpha + \beta = \frac{-b}{a} = \frac{٢}{١} = ٢$

-٦

$\alpha = ٢\beta \qquad \alpha \cdot \beta = \frac{c}{a} = ٢\beta^2 = \frac{٤}{٣} \qquad \beta = \pm \frac{٣}{٣}$

$\alpha + \beta = \frac{-b}{a} = \frac{a}{٣} = ٤\beta$

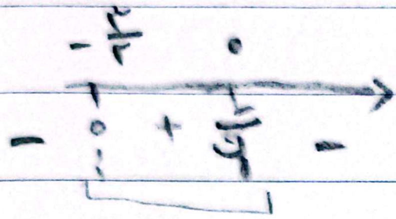
$\frac{a}{٣} = \frac{+٨}{٣} \qquad \frac{a}{٣} = \frac{-٨}{٣} \qquad a \to ٨,\ -٨ \qquad ٨ - -٨ = ١٦$



۷ـ $c=0$ پس یک ریشه صفر است

$-\frac{b}{a} > 0 \qquad -\frac{(2+2a)}{a} > 0$

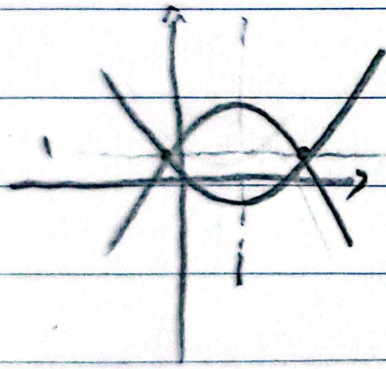
$a > 0$



اگر $a=0$ باشد خط $y=2x$ را داریم که با شیب از ناحیه سوم می‌گذرد $-\frac{3}{2} < a < 0$

چنین مقدار

۸ـ $a=+2 \qquad -\frac{a}{2} = \frac{2}{-2} = -\frac{b}{2a}$



$1 = x^2 + 2x - 2$

$0 = x^2 + 2x - 3$

$(x+3)(x-1) = 0$

$x = -3 , +1$

$-1 - 2 + b = 1$

$b = 4$

$-9 + 6 + b = 1$

$b = 4$

$a \times b = 2 \times 4 = 8$

$S = (\alpha + \frac{1}{2}) + (\beta + \frac{1}{2}) = \underbrace{\alpha + \beta}_{-1} + 1 = \frac{a}{2}$ — ٦

$S = \frac{-a}{2a} = -\frac{1}{2}$ $\quad a = 1$ $\quad \alpha\beta = \frac{c}{a} = \frac{-4}{1} = -4$

$(\alpha + \frac{1}{2})(\beta + \frac{1}{2}) = \alpha\beta + \frac{1}{2}(\alpha + \beta) + \frac{1}{4} = \frac{b}{2}$

$-4 + \frac{1}{2}(-\frac{1}{2}) + \frac{1}{4} = -4 = \frac{b}{2}$ $\quad b = -4$ $\quad \left[\frac{-4}{4}\right] = -1$

$\alpha + \beta - (\alpha + \beta_2) = \beta - \beta_2 = -2 - (-4) = 4$

$\downarrow$

$\frac{-b}{a} = -2$ $\quad \frac{-b}{a} = \frac{-4}{1}$

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