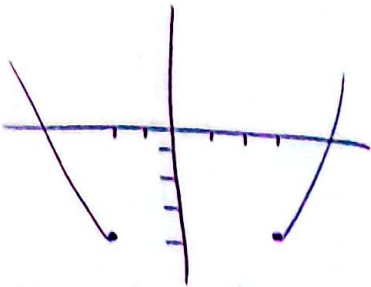


$$\alpha\beta = 2, \alpha + \beta = -5 \quad P = 2 \Rightarrow \beta = \frac{2}{\alpha}$$

$$\frac{\frac{2}{\alpha} \times \frac{2}{\alpha}}{\frac{2}{\alpha}} + \frac{\beta^2}{\alpha} \Rightarrow \frac{\alpha^2}{\alpha} + \frac{\beta^2}{\alpha} = \frac{5^2 - 2 \times 2}{\alpha} = \frac{19}{\alpha} \Rightarrow \boxed{19}$$

۲. چون عرض ها در دو نقطه برابر و طول ها در دو نقطه است. طول ها: $\frac{-1,5 + 3}{2} = \frac{3}{4}$

مجموع ریشه ها = طول ها $\times 2 = 1,5$



$$\sqrt{4k^2 - 20} = \frac{4}{3}k \Rightarrow \frac{16}{9}k^2 = 4k^2 - 20 \Rightarrow 16k^2 = 36k^2 - 180$$

$$180 = 20k^2 \Rightarrow k^2 = 9 \Rightarrow \frac{k^2}{2} = \frac{9}{2} \Rightarrow \left[\frac{9}{2}\right] = \boxed{4}$$

۴. عرض می A و B یکسان $\alpha_S = \frac{-b}{2a} = \frac{\alpha_A + \alpha_B}{2} \Rightarrow \alpha_S = -\frac{\Delta + 3}{2} = -1 \Rightarrow \frac{b}{2a} \Rightarrow S = -2$

$$y - 1 = a(x - (-1))^2 \Rightarrow y = ax^2 + 2ax + a + 1 \Rightarrow \alpha^2 + \beta^2 = 5 \Rightarrow S^2 - 2P = 5$$

$$(-2)^2 - 2\left(\frac{a+1}{a}\right) = 5 \Rightarrow a = \frac{-2}{3} \quad \text{عضو از مبدا} = a + 1 = \frac{1}{3}$$

$$-x^2 + 5x + m = 0 \Rightarrow x^2 - 5x - m = 0$$

$$-m = \alpha_1 \alpha_2$$

$$\alpha_1 + \alpha_2 = 5$$

$$\Rightarrow \frac{\Delta + \sqrt{4m + 25}}{2} < \frac{9}{2} \Rightarrow \sqrt{4m + 25} < 4 \Rightarrow 4m < -9 \Rightarrow m < -\frac{9}{4}$$

$$4m + 25 \geq 0 \quad m \geq -\frac{25}{4}$$

مقادیر m $\leftarrow \{-5, -\frac{9}{4}, -\frac{25}{4}\}$

$$m > 0 \quad \frac{ym^2 - \varepsilon m - 1 \varepsilon \varepsilon}{\varepsilon m} = \gamma \Rightarrow \wedge m = 1 \varepsilon \varepsilon - \varepsilon m - \gamma \cdot m^2 \Rightarrow \Delta m^2 - \gamma m - \gamma \gamma = 0$$

$$\Delta = \gamma \gamma_0 + \gamma = \gamma \gamma \gamma \Rightarrow m = \frac{\gamma \pm \sqrt{\gamma \gamma \gamma}}{10} < \frac{-1 \gamma}{\gamma} \Rightarrow m = \gamma \quad \frac{-b}{\gamma \gamma} = \alpha = \frac{1 \gamma}{\gamma} = \gamma$$

$$\alpha \beta = \alpha^2 \quad -\gamma(\alpha + 1) = \alpha + \beta \quad \gamma \alpha - 1 = \alpha \beta = \alpha^2 \Rightarrow \gamma \alpha - 1 = \alpha^2 \Rightarrow \alpha^2 - \gamma \alpha + 1 = 0$$

$$(\alpha - 1)^2 = 0 \Rightarrow \alpha = 1 \Rightarrow x \gamma + \gamma(\alpha + 1)x + \gamma \alpha - 1 = 0 \Rightarrow x^2 + \varepsilon x + 1 = 0$$

$$\alpha \beta = 1 \quad \alpha + \beta = -\varepsilon \Rightarrow \alpha = -\gamma + \sqrt{\gamma}, \beta = -\gamma - \sqrt{\gamma}, \alpha = 1$$

$$x^2 = t \Rightarrow t^2 - \gamma t - \Delta = 0 \Rightarrow t = x^2 = \frac{\gamma \pm \sqrt{\gamma \gamma}}{\gamma} \Rightarrow \alpha = \pm \sqrt{\frac{\gamma + \sqrt{\gamma \gamma}}{\gamma}} \Rightarrow S = 0$$

$$\Rightarrow P = -\frac{\gamma + \sqrt{\gamma \gamma}}{\gamma} \Rightarrow \gamma P^2 - \gamma S P + \gamma S = \Delta \gamma + \gamma \sqrt{\gamma \gamma}$$

$$\frac{-b}{\gamma \alpha} \Rightarrow k = \alpha, b = -\varepsilon \Rightarrow -\frac{\varepsilon}{\gamma k} = \frac{\gamma}{k} \Rightarrow k \left(\frac{\gamma}{k}\right)^2 - \varepsilon \left(\frac{\gamma}{k}\right) - \gamma \Rightarrow \frac{\gamma^2}{k} - \frac{\varepsilon \gamma}{k} - \gamma \Rightarrow -\frac{\varepsilon}{k} - \gamma$$

$$-\varepsilon \left(\frac{\gamma}{k}\right) - \varepsilon = -\frac{\varepsilon}{k} - \gamma \Rightarrow -\frac{1}{k} - \varepsilon \Rightarrow \frac{\varepsilon}{k} = \gamma \Rightarrow k = \gamma \quad \omega = (\gamma) + (-\gamma) = -1$$

$$-m - x = -m x^2 + m x + 1 \Rightarrow -m x^2 + m x + x + 1 + m = 0 \Rightarrow m x^2 - \alpha(m+1) - m + 1 = 0$$

$$\Rightarrow m^2 + \gamma m + 1 + \varepsilon m + 1 = \Delta \Rightarrow \Delta = m^2 + \gamma m + \gamma = (\Delta m + 1)(m + 1) \Rightarrow (\Delta m + 1)(m + 1) < 0$$

$$m = -\frac{1}{\Delta}, m = -1 \Rightarrow -\frac{1}{\Delta} > m > -1 \quad 0 = m \text{ مع } \Delta$$