$x^2 - Sx + P \Rightarrow ax^2 - ax - b = 0 \xrightarrow{\div a} x^2 - x - \frac{b}{a} = 0$ -۷

$\Rightarrow S = 1 \;,\; P = c$

$\alpha^2\beta + \alpha\beta^2 - \alpha\beta = 17 \xrightarrow{\div \alpha\beta} \alpha + \beta - 1 = \frac{17}{\alpha\beta}$

$\Rightarrow 1 - c = \frac{17}{20} \Rightarrow c = \frac{3}{20} \Rightarrow c = \frac{1}{\alpha\beta}$

$\alpha - \beta = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{1 - \frac{3}{20}}}{1} = \sqrt{\frac{17}{20}}$

---

$\frac{1-a}{2} = -2 \Rightarrow a = 5$ , $\frac{-1}{2}$

$\Rightarrow -\frac{1}{2} = 4a - 8a + \frac{3}{2} \Rightarrow a = \frac{1}{2} = b = 2$ -۸

$\Rightarrow y = \frac{1}{2}x^2 + 2x + \frac{3}{2} \Rightarrow \beta = \frac{1}{2} + 2 + \frac{3}{2} = 4$

---

$\alpha = -2 - \sqrt{9-a} \Rightarrow \alpha^2 = 13 - a + 4\sqrt{9-a}$

$\beta = -2 + \sqrt{9-a} \Rightarrow \beta^2 = 13 - a - 4\sqrt{9-a}$

$3\alpha^2 + 2\beta^2 = 2\alpha\beta - 2\alpha + 13\sqrt{9-a} + 24 - 2\alpha - 8\sqrt{9-a}$ -۹

$\Rightarrow 90 - 9a + 4\sqrt{9-a} = 18a + 12\sqrt{2}$

$4\sqrt{9-a} = 12\sqrt{2} \Rightarrow \sqrt{9-a} = 3 \Rightarrow a = 1$

---

$\frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = 5 \Rightarrow \left(\frac{\sqrt{\alpha} + \sqrt{\beta}}{\sqrt{\alpha\beta}}\right)^2 = (5)^2 \Rightarrow \frac{\alpha + \beta + 2\sqrt{\alpha\beta}}{\alpha\beta} = 25$ -۱۰

$\alpha\beta = \frac{1}{m+14} \;,\; \alpha + \beta = \frac{m+13}{m+14}$

$\frac{\frac{m+13}{m+14} + 2\sqrt{\frac{1}{m+14}}}{\frac{1}{m+14}} = 25 \Rightarrow$

$-mx^2 + 2x + 2 = -x^2 + 2x + 2 \;\Big\}\; \left(\frac{m+13}{m+14} + \frac{1}{m+14}\right) \times (m+14) = 25 \Rightarrow m = -1$

$\hookrightarrow P = \frac{c}{a} = -2$