F- $x^2 + 6x + a = 0 \Rightarrow \alpha + \beta = -4 \; , \; \alpha\beta = a$

$3\alpha^2 + 2\beta^2 = 12\sqrt{2} + 85$

$\downarrow$

$\alpha = 25$

5- $x^4 - 7x^2 - 5 = 0$

$x^2 = y \rightarrow y^2 - 7y - 5 = 0$

$S = 0 \; , \; P = -5$

$2p^2 - 25p + 25 = 2(25) = 50$

6- $2x^2 - ax + b = 0$ $\qquad a = 4$

$3ax^2 + ax - 4 = 0$ $\qquad b = K$

$\left[\frac{ab}{K}\right] = \left[\frac{24}{4}\right] = 6$

7- $ax^2 - ax - b = 0$

$4\beta^2 + 2\alpha^2 - 2\beta = 17$

$\alpha - \beta = 3$

تمرین هشتم

1- $\begin{cases} x + 3x = \frac{a}{3} \\ x \cdot 3x = \frac{4}{3} \end{cases}$

$3x^2 = \frac{4}{3} \rightarrow x^2 = \frac{4}{9} \rightarrow x = \pm\frac{2}{3}$

$\hookrightarrow x + 3x = 4x = \pm\frac{8}{3} \rightarrow \frac{a}{3} = \pm\frac{8}{3} = a = \pm 8$

$8 - (-8) = 16$ تفاوت دو مقدار a

2- $36x^2 - (m+14)x + 1 = 0$

مجموع معکوس ریشه ها = 5

$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha+\beta}{\alpha\beta} = 5$

$\alpha + \beta = \frac{m+14}{36}$ ، $\alpha\beta = \frac{1}{36}$

$\frac{\frac{m+14}{36}}{\frac{1}{36}} = m + 14 = 5 \rightarrow m = -9$

حاصل ضرب ریشه ها

$\frac{2}{-9} = -\frac{2}{9}$

3- $1 + \frac{1}{2} = \frac{3}{2} = -\frac{k}{4} = k = -6$