

$$-x^2 + \omega x + m = 0 \rightarrow S = \omega, P = m \rightarrow \Delta = \omega^2 - 4m < 9 \quad \checkmark$$

$$b^2 - 4ac = 4\omega - (4(-1)(m)) = 4\omega + 4m > 0 \rightarrow 4m > -4\omega \rightarrow m > -\frac{4\omega}{4}$$

$$\frac{-\omega \pm \sqrt{4\omega + 4m}}{-2} < \frac{9}{2} \rightarrow \omega \pm \sqrt{4\omega + 4m} < 9 \rightarrow \pm \sqrt{4\omega + 4m} < 9 - \omega$$

$$\sqrt{4\omega + 4m} < 9 - \omega \rightarrow 4\omega + 4m < (9 - \omega)^2 \rightarrow 4m < 9 - 9\omega + \omega^2$$

$$\leftarrow \text{جواب نهایی} \quad -\frac{4\omega}{4} < m < \frac{9 - \omega^2}{4}$$

$$y = ma^2 - 12x + \omega m - 1 \rightarrow a > 0 \rightarrow m > 0$$

$$\frac{-\Delta}{4a} = \frac{f_{ac} - b^2}{4a} \rightarrow \frac{f_m(\omega m - 1) - 144}{4m} = 2$$

$$f_m \omega m^2 - f_m - 144 = 4m \rightarrow f_m \omega m^2 - 12m - 144 = 0$$

$$b^2 - 4ac = 144 - 4 \times f_m \times (-144) = 144 + 576f_m = 144(1 + 4f_m) \rightarrow \sqrt{144(1 + 4f_m)} = 12\sqrt{1 + 4f_m}$$

$$\frac{-b \pm \sqrt{\Delta}}{2a} = \frac{12 \pm 12\sqrt{1 + 4f_m}}{2f_m} = \frac{6(1 \pm \sqrt{1 + 4f_m})}{f_m} \quad \checkmark \quad \text{نقطه کسری} = \frac{-b}{2a} = \frac{12}{2f_m} = \frac{6}{f_m}$$

$$x^2 - vx^2 - \omega = 0 \rightarrow x^2 = \frac{v \pm \sqrt{f_m - 4(-\omega)}}{2} = \frac{v \pm \sqrt{49}}{2}$$

$$x^2 > 0 \rightarrow \frac{v + \sqrt{49}}{2} \rightarrow x = \pm \sqrt{\frac{v + \sqrt{49}}{2}} \quad S = 0 \quad P = -\frac{v + \sqrt{49}}{2}$$

$$2P^2 - 3SP + 2S = 2\left(-\frac{v + \sqrt{49}}{2}\right)^2 + 0 + 0 = \frac{v^2 + 2v\sqrt{49} + 49}{2}$$

$$y = Kx^2 - tx - 4 \quad , \quad y = -tx - 4 \quad \left. \begin{matrix} -b \\ 2a \end{matrix} \right\} = \frac{t}{2K}$$

$$\frac{f_{ac} - b^2}{4a} = \frac{f_{K}(-4) - 16}{4K} = -4 - \frac{4}{K}$$

$$-4 - \frac{4}{K} = -t\left(\frac{t}{2K}\right) - t \rightarrow -4 - \frac{4}{K} = \frac{t^2}{2K} - t \rightarrow K = 2$$

$$\rightarrow -4 - \frac{4}{2} = -4 - 2 = -6$$

