

$$y_{\max} = \frac{-\Delta}{ka} = \frac{ka - b^2}{ka} \leq \frac{k(-3) - b^2}{-k} \leq v \quad -1$$

$$\frac{-12 - b^2}{-k} \leq v \Rightarrow -12 - b^2 \leq -28 \Rightarrow b^2 \leq 16 \Rightarrow b \leq \pm 4$$

$$f(x) \leq x^2 + 2x + 3 \Rightarrow x^2 \leq 8 \quad -2$$

معادله حقیقی ندارد $\Delta < 0 \Rightarrow 8^2 - 4 \times 1 \times 3 < 0$

$$f(x) \leq x^2 \Rightarrow x^2 - 2x - 1 \leq 0 \Rightarrow (x-3)(x+1) \leq 0$$

$$f(x) \leq 1 \Rightarrow x^2 \leq 1 \Rightarrow x \in [-1, 1]$$

$$f(x) \leq -3 \Rightarrow x^2 \leq -4 \Rightarrow x \in \emptyset$$

$$\beta \leq \alpha + 2 \Rightarrow 5 \leq \frac{b}{a} \leq \frac{14}{k} \leq k \quad -3$$

$$\Rightarrow \alpha + 2 + \alpha \leq 2\alpha + 2 \leq k \Rightarrow 2\alpha \leq k \Rightarrow \alpha \leq \frac{k}{2} \Rightarrow \beta \leq \frac{k}{2} + 2$$

$$\alpha \beta \leq \frac{c}{a} \Rightarrow \frac{m}{k} \leq 3 \Rightarrow m \leq 12$$

$$\beta \leq 2\alpha - k \Rightarrow 2\alpha - k + \alpha \leq 3\alpha - k \leq 2 \Rightarrow \alpha \leq 2 \Rightarrow \beta \leq 0 \quad -4$$

$$\Rightarrow \alpha \beta \leq \frac{c}{a} \Rightarrow 0 \leq \frac{m-1}{k} \Rightarrow m \leq 1$$

$$\frac{c}{a} \leq 1 \rightarrow \frac{m^2 - 2}{-m} \leq 1 \rightarrow m^2 - 2 \geq -m \quad -3$$

$$\rightarrow m^2 + m - 2 \geq 0 \rightarrow (m+2)(m-1) \geq 0$$

(1) (-2)

(به دلیل جایگذاری در جدول و نامی که برقرار است) $\rightarrow$ $\rightarrow$

$$\Delta \geq 0 \rightarrow 14 - 4(-m + 2m) \geq 0 \rightarrow 14 + 4m - 8m \geq 0$$

$$\rightarrow (m \leq 1)$$

$$\alpha / \beta \leq \frac{1}{3} \rightarrow \frac{\alpha / \beta}{\alpha / \beta} \leq \frac{1}{3} \rightarrow \beta \leq \frac{\alpha}{3} \rightarrow \alpha \leq \frac{\alpha}{3} \quad -4$$

$$\beta \leq m \rightarrow \frac{\alpha}{3} \leq \frac{1}{3} \leq \frac{m+1}{12} \leq \frac{1}{12} \rightarrow m \leq \frac{1}{12}$$

$$\beta \leq \alpha \rightarrow \beta \leq \frac{1}{3} \rightarrow m + \alpha \leq \frac{1}{3} \rightarrow \alpha \leq 1 \rightarrow \beta \leq \frac{1}{3} \quad -5$$

$$p \leq \frac{1}{3} \leq m \rightarrow m \leq \frac{1}{3}$$

$$\alpha^m + \left(\frac{1}{\alpha}\right)^m \leq \alpha^m + \left(\frac{\alpha / \beta}{\alpha}\right)^m \leq 5 - m p \leq 5 - m \left(\frac{1}{3}\right)^m \quad -6$$

$$5 \leq \frac{1}{3}$$

$$p \leq \frac{1}{3}$$



$$h_{\max} = \frac{-\Delta}{4a} = \frac{4ac - b^2}{4a} = \frac{0.42500}{2 \times 0.5} = 42.5 \quad -9$$

$$- \ln t^2 + 4 \ln 50 \xrightarrow{\frac{d}{dt}(-\ln)} t^2 - 4t = 0 \rightarrow t(t-4) = 0 \quad (4)$$

در لحظه پنجم توپ به زمین می‌رسد.

الف)

