

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ۱۰۰... کلاس یازدهم سرپرست

$$y_3 = \frac{-A}{\varepsilon a} = \frac{\varepsilon ac - b^2}{\varepsilon a} = \frac{-12 - b^2}{- \varepsilon} = \frac{12 + b^2}{\varepsilon} \Rightarrow b^2 = 12 \Rightarrow b = \pm \sqrt{12} \checkmark$$

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الف) $f(x) = x^4 + 2x^2 + 3 \Rightarrow t^2 + 2t + 3 = 0 \Rightarrow \Delta = b^2 - 4ac = 4 - 12 = -8 < 0 \Rightarrow$ معادله جواب ندارد $\checkmark$

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ب) $f(x) = (x^2 - 1)^2 - 2(x^2 - 1) - 15 \Rightarrow t^2 - 2t - 15 = 0 \Rightarrow (t - 5)(t + 3) = 0$

$\left\{ \begin{array}{l} t = -3 \Rightarrow x^2 - 1 = -3 \Rightarrow x^2 = -2 \Rightarrow x = \pm \sqrt{-2} \checkmark \\ t = 5 \Rightarrow x^2 - 1 = 5 \Rightarrow x^2 = 6 \Rightarrow x = \pm \sqrt{6} \checkmark \end{array} \right.$

$S = \frac{-b}{a} = \frac{-12}{- \varepsilon} = 12 = \alpha + \beta \Rightarrow \left\{ \begin{array}{l} 2\alpha + 2 = 12 \Rightarrow 2\alpha = 10 \Rightarrow \alpha = 5 \checkmark \\ \beta = \alpha + 2 = 7 \checkmark \end{array} \right.$

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$P = \frac{c}{a} = \frac{m}{\varepsilon} = \alpha\beta \Rightarrow 1 \times 7 = 7 = \frac{m}{\varepsilon} \Rightarrow m = 7 \checkmark$

$\varepsilon x^2 - 12x + 7 = 0$

$S = \alpha + \beta = \frac{-b}{a} = -\frac{-9}{3} = 3 \Rightarrow \left\{ \begin{array}{l} \alpha + \beta = 3 \\ 2\alpha - \beta = 3 \end{array} \right. \Rightarrow \left\{ \begin{array}{l} \alpha = 2 \\ \beta = 1 \end{array} \right. \checkmark$

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$P = \frac{c}{a} = \alpha\beta = 2 \times 1 = 2 = \frac{m-1}{3} \Rightarrow m-1 = 6 \Rightarrow m = 7 \checkmark$

$\left\{ \begin{array}{l} \alpha = \frac{1}{\beta} \\ P = \alpha\beta = \frac{c}{a} = \frac{m-1}{-m} \end{array} \right. \Rightarrow \left(\frac{1}{\beta} \right) \beta = \frac{m-1}{-m} \Rightarrow m-1 = -m \Rightarrow m+m-1 = 0 \Rightarrow (m+1)(m-1) = 0$

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$\left\{ \begin{array}{l} m = 1 \rightarrow -x^2 + 4x - 1 = 0 \checkmark \\ m = -1 \rightarrow 2x^2 + 4x + 2 = 0 \Rightarrow \Delta = 0 \end{array} \right.$

$m = 1$

$$p = \frac{c}{a} = \alpha\beta = 3 \quad \left. \begin{array}{l} \alpha\beta^2 = 12 \end{array} \right\} \Rightarrow \frac{1}{\beta} = \frac{3}{12} \Rightarrow \beta = \frac{4}{3} \quad \alpha\beta = 3 \Rightarrow \alpha = \frac{9}{4}$$

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$$s = \frac{-b}{a} = \alpha + \beta = m \quad \left. \begin{array}{l} \alpha, \beta = \frac{9}{4}, \frac{4}{3}, \frac{16}{9} \end{array} \right\} \Rightarrow m = \frac{25}{12} \checkmark$$

$$\alpha = 3\beta \quad \left. \begin{array}{l} s = \alpha + \beta = \frac{-b}{a} = 4 \end{array} \right\} \Rightarrow 4\beta = 4 \Rightarrow \beta = 1, \alpha = 3$$

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$$p = \frac{c}{a} = m = \alpha\beta = 12 \Rightarrow m = 3 \checkmark$$

$$p = \frac{c}{a} = \alpha\beta = 2 \Rightarrow \beta = \frac{2}{\alpha} \Rightarrow \beta^2 = \frac{4}{\alpha^2}$$

$$s = \frac{-b}{a} = 4$$

$$p = \frac{c}{a} = 2$$

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$$\alpha^2 + \frac{4}{\alpha^2} = \alpha^2 + \beta^2 = s^2 - 2sp = 24 - 4 \cdot 2 = 16 \checkmark$$

$$h(t) = -1 \cdot t^2 + 5 \cdot t = -1 \cdot (t^2 + 5t) = -1 \cdot t(t+5) \xrightarrow{h(0)} -1 \cdot t(t+5) = 0$$

$$y_s = \frac{-\Delta}{2a} = \frac{5 \cdot 5 - 25}{2 \cdot (-1)} = \frac{0 - 25}{-2} = \frac{25}{2} = 12.5 \checkmark$$

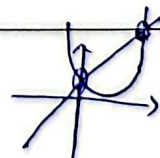
ارتفاع ماکسیمم توپ

$t = 5$ لحظه برخورد توپ به زمین

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$$f(x) = (x-1)^2 + 2x + 1 \Rightarrow x^2 - 2x + 1 + 2x + 1 = x^2 - 4x + 2 \quad \begin{array}{l} x=0 \\ x=4 \end{array} \checkmark$$



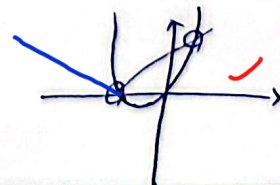
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$$a) x^2 + 2x = |x+2| \xrightarrow{x \geq -2} x^2 + 2x = x+2$$

$$x \geq -2 \Rightarrow x^2 + 2x = x+2 \Rightarrow x^2 + x - 2 = 0 \Rightarrow x = 1 \quad \checkmark$$

$$x < -2 \Rightarrow x^2 + 2x = -(x+2) \Rightarrow x^2 + 3x + 4 = 0 \Rightarrow x = -1 \quad \checkmark$$



$$\Rightarrow x = -2$$

$$\Rightarrow \begin{array}{l} x=1 \\ x=-2 \end{array} \checkmark$$