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نام و نام خانوادگی: قریب از: پاسخنامه تشریحی تکلیف شماره ۱۴ کلاس: (معتبر)

$$y = -x^2 + bx + 3$$

$$x_{\min} = \frac{-b}{2a} \Rightarrow \frac{b}{2a} = y_{\max} = -\left(\frac{-b}{2a}\right)^2 + b\left(\frac{b}{2}\right) + 3 \Rightarrow -\frac{b^2}{4} + \frac{b^2}{2} + 3 \Rightarrow$$

$$y_{\max} = \frac{b^2}{4} + 3 \quad \frac{b^2}{4} + 3 = 7 \quad \frac{b^2}{4} = 4 \quad b^2 = 16 \quad \boxed{b = \pm 4}$$

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۱) $f(x) = x^2 + 2x + 3$ $t = x^2$ $t^2 + 2t + 3 = 0$ $\Delta < 0$ | ریشه حقیقی ندارد |

۲) $f(x) = (t - x^2)^2 - 2(t - x^2) - 15$ $t = t - x^2$ $t^2 - 2t - 15 = 0$ $(t - 5)(t + 3) = 0$

$t = 5 \Rightarrow t - x^2 = 5 \quad x^2 = -1 \times$

$t = -3 \Rightarrow t - x^2 = -3 \quad x^2 = 6 \Rightarrow \boxed{x = \pm\sqrt{6}}$

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$$x^2 - 14x + m = 0 \quad \alpha = \beta + 2$$

$$\alpha + \beta = \frac{-b}{a} \quad 2\beta + 2 = \frac{-(-14)}{1} \quad 2\beta = 12 \quad \boxed{\beta = 6} \quad \boxed{\alpha = 8}$$

$$\alpha \times \beta = \frac{c}{a} \quad \beta + 2\beta = \frac{m}{1} \quad 3\beta = m \quad \boxed{m = 12} \quad \Delta = 14^2 - 4 \times 12 = 100 > 0 \checkmark$$

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$$3x^2 - 4x + m - 1 = 0 \quad 2x - \beta = 2 \quad \beta = 2x - 2$$

$$\alpha + \beta = \frac{4}{3} = 2 \quad \alpha + 2x - 2 = 2 \quad 3\alpha - 4 = 2 \quad \alpha = \frac{6}{3} = 2 \quad \boxed{\alpha = 2} \quad \boxed{\beta = 0}$$

$$\alpha \times \beta = \frac{m-1}{3} \quad \frac{m-1}{3} = 0 \quad m-1 = 0 \quad \boxed{m = 1} \quad \Delta = 4^2 - 4 \times 3 = 4 > 0 \checkmark$$

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$$-m x^2 + 4x + m^2 - 2 = 0$$

معکوس $\rightarrow \frac{c}{a} = 1 = \frac{-m^2 - 2}{-m} = 1 \quad -m^2 + 2 = m \quad m^2 + m - 2 = 0$

$$(m+2)(m-1) = 0 \quad \begin{cases} \boxed{m = -2} & \Delta = 0 \times \\ \boxed{m = 1} & \Delta > 0 \checkmark \end{cases}$$

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$$\alpha^2 - m\alpha + 1 = 0 \quad \alpha\beta = 1$$

$$\underbrace{\alpha \times \beta}_{1} = \frac{1}{\beta} \quad \frac{1}{\beta} = 1 \quad \boxed{\beta = 1} \quad \alpha = \frac{1}{1} = \boxed{1}$$

(1, 1)

$$\alpha + \beta = m \quad m = \frac{1}{1} + \frac{1}{1} = \boxed{\frac{1+1}{1}} \quad \alpha^2 - \frac{1+1}{1}\alpha + 1 = 0 \quad \Delta > 0 \quad \checkmark$$

$$\alpha^2 - 1\alpha + m = 0$$

$$\alpha = 1\beta$$

$$\alpha\beta = m \quad 1\beta = m \quad \boxed{m = 1}$$

$$\alpha + \beta = 1 \quad 1\beta = 1 \quad \boxed{\beta = 1} \quad \boxed{\alpha = 1} \quad \alpha^2 - 1\alpha + 1 = 0 \quad \Delta > 0 \quad \checkmark$$

(1, 1)

$$\alpha^2 - V\alpha + 1 = 0 \quad \alpha^2 + \frac{1}{\alpha^2} \rightarrow \alpha^2 + 1\left(\frac{1}{\alpha^2}\right) \rightarrow$$

$$\alpha\beta = 1 \rightarrow \left(\alpha = \frac{1}{\beta}\right)^2$$

$$\downarrow \alpha^2 - V\alpha + 1 = 0 \quad \alpha^2 = V\alpha - 1 \rightarrow \alpha = \frac{V\alpha - 1}{\alpha} = V - \frac{1}{\alpha} \quad \boxed{\beta = \frac{1}{\alpha}}$$

$$\downarrow \frac{1}{\alpha} = t \quad \left(\frac{1}{t}\right)^2 - V\frac{1}{t} + 1 = 0 \rightarrow t^2 - Vt + 1 = 0 \rightarrow t = \frac{V \pm \sqrt{V^2 - 4}}{2} \quad \alpha^2 + \frac{1}{\alpha^2} \rightarrow \alpha^2 + \beta^2 = 5 \quad \beta = 1:1$$

$$h(t) = -10t^2 + 50t$$

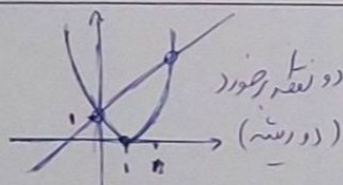
$$\text{max ارتفاع} \rightarrow y_{\text{max}} = \frac{-\Delta}{2a} = \frac{-(50)^2}{2(-10)} = \frac{2500}{20} = \boxed{125 \text{ m}}$$

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$$h(t) = 0 \quad -10t^2 + 50t = 0 \quad -10t(t - 5) = 0$$

$$\hookrightarrow t = 0 \times 5 \quad \boxed{t = 5} \quad \checkmark$$

$$\text{الف) } (\alpha - 1)^2 = 2\alpha + 1$$



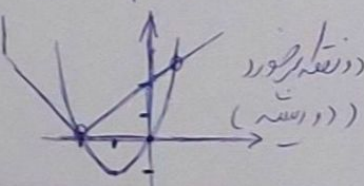
$$\alpha^2 - 2\alpha + 1 = 2\alpha + 1$$

$$\alpha^2 - 4\alpha = 0 \quad \alpha(\alpha - 4) = 0$$

$$\alpha = 0 \quad \alpha = 4$$

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$$\text{ب) } \alpha^2 + 2\alpha = 1\alpha + 1$$



$$\alpha = -2$$

$$\alpha = 1$$

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