

نام و نام خانوادگی: ... پاسخنامه تشریحی تکلیف شماره ... کلاس: ...

$$\rightarrow \begin{cases} x = \frac{-b}{2a} \\ y = v \end{cases} \Rightarrow x = \frac{-b}{2(-1)} = \frac{b}{2} \quad (1)$$

$$(1) \rightarrow v = -(\frac{b}{2})^2 + b(\frac{b}{2}) + 3 \Rightarrow \frac{b^2}{4} + 3 = v \Rightarrow b^2 = 14 \Rightarrow b = \pm \sqrt{14} \quad \checkmark$$

$$t = x^2 \rightarrow t^2 + 2t + 3 = 0 \rightarrow \Delta = 4 - 12 = -8 \rightarrow \text{ریشه حقیقی ندارد} \quad \checkmark$$

$$t = x^2 \rightarrow t^2 - 2t - 15 = 0 \rightarrow t = \frac{2 \pm \sqrt{4 + 60}}{2} = \frac{2 \pm 8}{2} \Rightarrow t = 5 \text{ or } t = -3 \quad (2)$$

$$(2) \rightarrow 5 - x^2 = -3 \Rightarrow x^2 = 8 \Rightarrow x = \pm \sqrt{8} \quad \checkmark$$

$$(2) \rightarrow -3 - x^2 = 0 \Rightarrow x^2 = -3 \Rightarrow \text{no solution} \quad \times$$

$$\text{ریشه} \rightarrow x_1, x_2 = x_1 + 2$$

$$\begin{cases} x_1 + x_2 = \frac{14}{4} = 3.5 \\ x_1 x_2 = \frac{m}{4} \end{cases} \Rightarrow 2x_1 + 2 = 3.5 \Rightarrow x_1 = 0.75, x_2 = 2.75 \quad (3)$$

$$x_1 x_2 = \frac{m}{4} \xrightarrow{(3)} 1 \times 3 = \frac{m}{4} \Rightarrow m = 12 \quad \checkmark$$

$$\begin{cases} \alpha + \beta = \frac{-b}{a} = \frac{4}{2} = 2 \\ \alpha \beta = \frac{m-1}{3} = \frac{c}{a} \end{cases} \Rightarrow \begin{cases} 2\alpha + (-\beta) = 4 \\ \alpha + \beta = 2 \end{cases} \xrightarrow{+} 3\alpha = 6 \Rightarrow \alpha = 2, \beta = 0 \quad (4)$$

$$\alpha \beta = (2)(0) = \frac{m-1}{3} \Rightarrow m-1 = 0 \Rightarrow m = 1 \quad \checkmark$$

$$\text{ریشه یکسان} \rightarrow \frac{c}{a} = 1 \Rightarrow \frac{m^2 - 2}{-m} = 1 \rightarrow m^2 + m - 2 = 0 \Rightarrow (m+2)(m-1) = 0$$

$$\begin{aligned} m=1 &\rightarrow \Delta = 4 - 4 = 0 \quad \checkmark \Rightarrow \text{yes} \quad (5) \\ m=-2 &\rightarrow 4 - 14 = -10 \neq 0 \quad \times \Rightarrow \text{no} \quad (6) \end{aligned} \Rightarrow m=1 \quad \checkmark$$

$$\begin{cases} \alpha + \beta = m \\ \alpha \beta = r \Rightarrow \alpha = \frac{r}{\beta} \text{ ①} \end{cases}$$

$$\alpha \beta = r \xrightarrow{\text{①}} \frac{r}{\beta} (\beta) = r \Rightarrow r \beta = r \rightarrow \beta = \frac{r}{r} \Rightarrow \alpha = \frac{r}{\frac{r}{r}} = \frac{r}{r}$$

$$m = \alpha + \beta = \frac{r}{r} + \frac{r}{r} = \boxed{\frac{r+r}{1}} \checkmark$$

(2)
6

$$\Rightarrow \alpha = r\beta \rightarrow \begin{cases} \alpha + \beta = r \rightarrow r\beta = r \Rightarrow \beta = 1, \alpha = r \\ \alpha \beta = m \rightarrow (1)(r) = r \Rightarrow \boxed{m = r} \end{cases} \checkmark$$

(2)
7

$$\rightarrow \alpha^r - v\alpha + r = 0 \xrightarrow{\div \alpha} \alpha + \frac{r}{\alpha} - v = 0 \Rightarrow \alpha + \frac{r}{\alpha} = v$$

$$(\alpha + \frac{r}{\alpha})^r = \alpha^r + \frac{1}{\alpha^r} + r\alpha \times \frac{r}{\alpha} (\alpha + \frac{r}{\alpha}) = \alpha^r + \frac{1}{\alpha^r} + 4(\alpha + \frac{r}{\alpha})$$

$$\Rightarrow v^r = \alpha^r + \frac{1}{\alpha^r} + 4(v) \Rightarrow \alpha^r + \frac{1}{\alpha^r} = r^r r - r r = \boxed{r^r - r} \checkmark$$

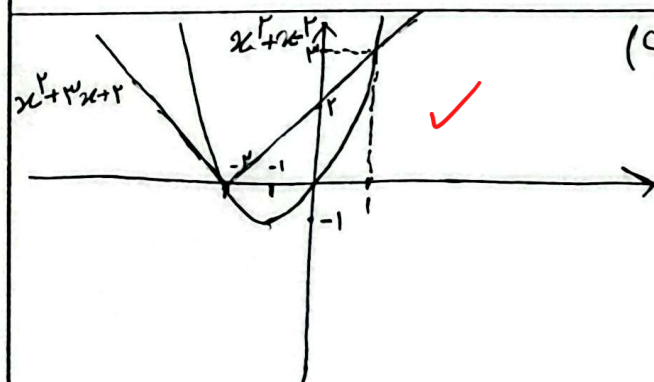
(2)
8

$$\rightarrow t_{max} = \frac{-\Delta_0}{r(-10)} = r, \Delta_0 = 10$$

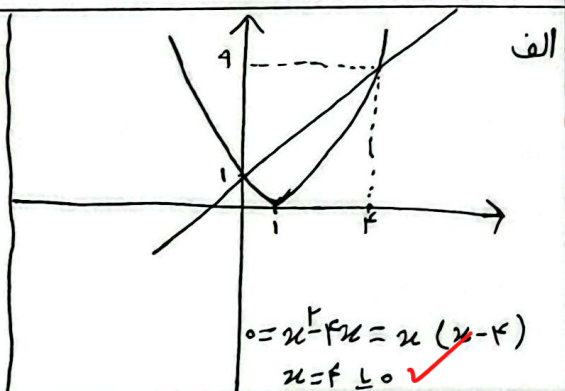
$$\rightarrow h_{max} = -10(r, \Delta) + \Delta_0(r, \Delta) = \boxed{4r, \Delta} \checkmark$$

(2)
9

$$\xrightarrow{\text{بجای}} h=0 \Rightarrow -10t^r + \Delta_0 t = 0 \Rightarrow -10t(t-\Delta) = 0 \rightarrow t=0 \times \underline{t=\Delta} \text{ می باشد} \checkmark$$



(c)



(f)

(2)
10