

$y = -x^2 + bx + 3 \rightarrow y_s = \frac{-b^2 - 12}{-4} = 7 \Rightarrow b^2 + 12 = 28$ $\rightarrow b^2 = 16 \Rightarrow b = \pm 4$	۱
الف) $f(x) = x^2 + 2x + 3 \rightarrow \Delta = 4 - 12 = -8 < 0$ تغییر نشد ندارد ب) $f(x) = (2-x^2)^2 - 4(2-x^2) - 1 \stackrel{2-x^2=t}{=} t^2 - 2t - 1 = 0$ $\Rightarrow (t-3)(t+1) = 0 \rightarrow t = 3 \rightarrow 2-x^2 = 3 \rightarrow x^2 = -1$ <u>ریشه ندارد</u> $\rightarrow t = -1 \rightarrow 2-x^2 = -1 \rightarrow x^2 = 3 \rightarrow x = \pm \sqrt{3}$	۲
$5x^2 - 14m + m = 0 \rightarrow 5\alpha + \alpha + 2 = \frac{-b}{a} \rightarrow 6\alpha + 2 = \frac{14}{5} \Rightarrow \alpha = \frac{1}{5}$ $p = \frac{c}{a} = \frac{m}{5} = 2 \Rightarrow \boxed{m = 10}$ $5x^2 - 14m + 2 = 0$ $\Delta > 0$ ✓	۳
$4x^2 - 9x + m - 1 = 0$ $2\alpha - \beta = 2 \Rightarrow \beta = 2\alpha - 2 \Rightarrow \alpha + \beta = \frac{-b}{a} \Rightarrow \alpha + 2\alpha - 2 = \frac{9}{4} \Rightarrow 3\alpha = \frac{17}{4} \Rightarrow \alpha = \frac{17}{12}$ $\Rightarrow 2\alpha = \frac{17}{6} \Rightarrow \alpha = \frac{17}{12}, \beta = 0$ $p = \frac{c}{a} = \frac{m-1}{4} = 0 \Rightarrow m-1=0 \Rightarrow m=1$ $4x^2 - 9x = 0$ $\Delta > 0$ ✓	۴
$-mx^2 + 2x + m^2 - 2 = 0 \rightarrow \beta = \frac{1}{a} \rightarrow p = 1 = \frac{c}{a}$ $\Rightarrow \frac{m^2 - 2}{-m} = 1 \rightarrow m^2 + m - 2 = 0$ $m=1 \rightarrow -x^2 + 2x - 1 = 0 \Rightarrow \Delta = 4 - 4 = 0$ $\Rightarrow m=1$ $\rightarrow p=1$ $m=-2 \rightarrow 2x^2 + 2x + 2 = 0 \Rightarrow \Delta = b^2 - 4ac = 4 - 16 = -12 < 0$ $\Rightarrow$ <u>ریشه ندارد</u>	۵

$$x^r - m x + k = 0 \quad \alpha \beta^r \leq \varepsilon \Rightarrow \underbrace{\alpha \beta \times \beta}_{\mu} \leq \varepsilon \Rightarrow \beta = \frac{\varepsilon}{\mu}, \alpha = \frac{q}{\varepsilon}$$

$$p = \alpha \beta = \frac{c}{a} = \mu$$

$$S = \alpha + \beta = \frac{2}{\mu} + \frac{q}{\varepsilon} = \frac{14 + 16}{12} = \frac{30}{12} = \frac{5}{2}$$

(5/2) (1, 1/2)

$$x^r - \frac{16}{12}x + 1 = 0 \checkmark$$

$$x^r - \varepsilon x + m = 0 \rightarrow \beta = \mu \alpha$$

$$S = \alpha + \beta = \alpha + \mu \alpha = \varepsilon \alpha = \frac{-b}{a} = \varepsilon \Rightarrow \alpha = 1, \beta = \mu$$

$$p = \alpha \beta = \frac{c}{a} \Rightarrow \mu = \frac{m}{1} \Rightarrow \mu = m \Rightarrow x^r - \mu x + 1 = 0 \checkmark$$

$$x^r - v x + r = 0 \Rightarrow \alpha^r - v \alpha + r = 0 \Rightarrow \alpha^r + r = v \alpha$$

$$(a+b)^r = a^r + b^r + r a b (a+b) \Rightarrow \left(\alpha + \frac{r}{\alpha}\right)^r = \alpha^r + \frac{1}{\alpha^r} + r \left(\alpha + \frac{r}{\alpha}\right)$$

$$\Rightarrow \alpha^r + \frac{1}{\alpha^r} - \left(\alpha + \frac{r}{\alpha}\right)^r - r \left(\alpha + \frac{r}{\alpha}\right) = v^r - \varepsilon r = \mu \varepsilon \mu - \varepsilon r = \mu_0$$

$$\alpha + \frac{r}{\alpha} = \frac{\alpha^r + r}{\alpha} = \frac{v \alpha}{\alpha} = v$$

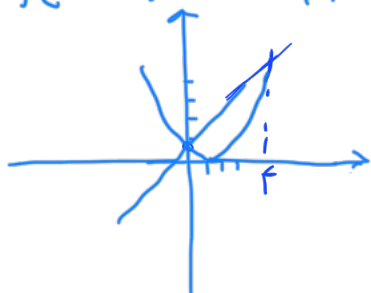
$$h(t) = -10t^r + 200t \Rightarrow y_s = \frac{-2000}{-20} = 100 \rightarrow h_{\max}$$

$$\underline{h=0} \rightarrow -10t^r + 200t = 0 \rightarrow t(200 - 10t) = 0 \rightarrow t = 0$$

(5) (5)

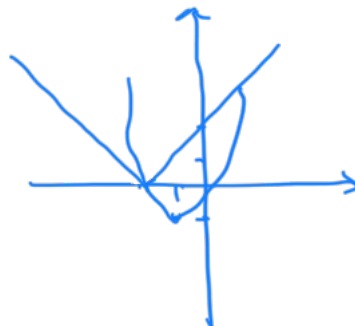
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الف) $(n-1)^r = r(n+1)$



$$r = \frac{1}{2}$$

ب) $x^r + r x = |n+r| \rightarrow n = -r$
 $n = 1$



(1) (1)

1.