

$$y = -x^2 + 6x + 9$$

$$\max x = 1 \rightarrow \frac{-D}{2a} = 1 \rightarrow \frac{(b^2 + 12)}{2} = 1 \rightarrow b^2 + 12 = 2 \rightarrow b^2 = -10$$

$$\begin{cases} b = 3 \rightarrow -x^2 + 3x + 9 \checkmark \text{ د.} \\ b = -3 \rightarrow -x^2 - 3x + 9 \checkmark \text{ د.} \end{cases}$$

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الف) $f(m) = x^2 + 2x + 9$ $f(m) = t^2 + 2t + 9 = 0$
 $\Delta = 4 - 36 = -32$
 $t = \frac{-2 \pm \sqrt{-32}}{2} = -1 \pm i\sqrt{8}$
 $x^2 = t^2 \rightarrow x = \pm \sqrt{t}$

تابع دایره

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

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$$x^2 - 14x + m = 0$$

$$\alpha, \beta = \alpha + 2$$

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$$\rightarrow S: 2\alpha + 2 = \frac{-b}{a} = \frac{14}{2} \rightarrow \alpha = 3 \rightarrow f(1) = 0 \rightarrow -14 + m = 0$$

$m = 14$

$$x^2 - 14x + 14 = 0 \rightarrow x^2 - 14x + 14 = 0 \rightarrow (x - 7)^2 - 35 = 0$$

$$x^2 - 4x + m - 1 = 0$$

$$2\alpha - \beta = 2 \rightarrow \beta = 2\alpha - 2, \alpha$$

$$\rightarrow S: \frac{-b}{a} = \alpha + 2\alpha - 2 = 3\alpha - 2 = \frac{4}{2} = 2 \rightarrow 3\alpha = 4 \rightarrow \alpha = \frac{4}{3}$$

$$12 - 12 + m - 1 = 0$$

$m = 1$

$$x^2 - 4x = 0 \rightarrow x(x - 4) = 0$$

$$-mx^2 + 8x + m^2 - 2 = 0$$

$$\begin{cases} \Delta = 0 \\ \rho = 1 \rightarrow \frac{c}{a} = 1 \rightarrow \frac{m^2 - 2}{-m} = 1 \rightarrow m^2 - 2 = -m \end{cases}$$

$$m^2 + m - 2 = 0 \rightarrow (m + 2)(m - 1) = 0 \rightarrow m = -2 \text{ or } m = 1$$

$$m = 1 \rightarrow y = -x^2 + 8x - 1$$

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$$n^r - mn + r = 0$$

$$\alpha \beta = 2 \Rightarrow (\alpha/\beta)/\beta = 2 \rightarrow \alpha\beta = 2$$

$$\frac{\alpha}{\beta} = 2 \rightarrow \beta = \frac{\alpha}{2} \rightarrow f\left(\frac{\alpha}{2}\right) = 0$$

$$\frac{14}{9} - \frac{\alpha}{9}m + r = 0$$

$$\frac{\alpha}{9}m = \frac{14}{9} - r \rightarrow m = \frac{\alpha}{9} \times \frac{14}{\alpha} = \frac{14}{9} = m$$

$$2x^r - \frac{14}{9}x + r = 0 \checkmark$$

$$n^r - \alpha n + m = 0$$

$$\beta = \alpha, \alpha$$

$$S \rightarrow \alpha\alpha + \alpha = \alpha\alpha = -\frac{b}{a} = 2 \rightarrow \alpha\alpha = 2 \rightarrow \alpha = 1 \rightarrow f(1) = 0$$

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

$$m = \alpha$$

$$2x^r - \alpha x + r = 0 \checkmark$$

$$n^r - \alpha n + r = 0$$

$$\alpha^r + \frac{\alpha}{\alpha^r} : \alpha\beta = r \rightarrow \alpha = \frac{r}{\beta} \rightarrow \alpha^r + \frac{\alpha}{\alpha^r} = \alpha^r + \frac{1}{\left(\frac{r}{\beta}\right)^r} = \alpha^r + \frac{\alpha\beta^r}{r}$$

$$S = -\frac{b}{a} = r$$

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

$$= \alpha^r + \beta^r = S^r - \alpha\beta = (r)^r - \alpha(r)(r)$$

$$= r^r - \alpha r = (r, 1)$$

$$h(t) = -1 \cdot t^r + d \cdot t$$

$$\frac{-b}{2a} = \frac{-d}{2(-1)} = \frac{d}{2}$$

$$\frac{-b}{2a} = \frac{-d}{2(-1)} = \frac{d}{2} = \frac{4r, d}{2} = (4r, d)$$

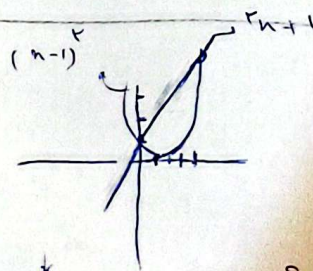
$$h(t) = 1 \cdot t(-t + d) \rightarrow h(t) = 1 \cdot t(-t + d)$$

$$t = d$$

$$(n-1)^r = r_{n+1} \rightarrow n^r - r_{n+1} + 1 = r_{n+1}$$

$$\frac{-b}{2a} = \frac{r}{1} = r$$

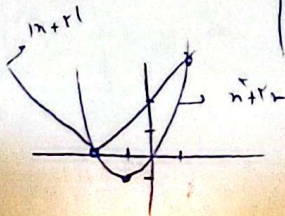
$$f(1) = -r + 1 = 0$$



$$\begin{cases} n=0 \\ n=1 \end{cases}$$

$$n^r + r_n = |n+r|$$

$$\frac{-b}{2a} = \frac{-r}{1} = -r \rightarrow f(-1) = 1 - r = 0$$



$$\begin{cases} n=-1 \\ n=1 \end{cases}$$