

$$\frac{-b}{ra} = 2 \rightarrow \frac{-1}{ra-1} = 2 \rightarrow -1 = 2a - 2 \rightarrow 2a = 1 \rightarrow a = \frac{1}{2}$$

$$y = -\frac{1}{2}x^2 + x + 2 \quad x = \frac{-1 \pm \sqrt{1+8}}{-1} = -2 \quad \text{طول موج}$$

$$a < 0 \rightarrow m < 0$$

$$\Delta > 0 \rightarrow 1 - 4m^2 > 0 \rightarrow m^2 < \frac{1}{4} \rightarrow -\frac{1}{2} < m < \frac{1}{2}$$

$$f: (-\infty, 0) \cap (-\frac{1}{2}, \frac{1}{2}) = (-\infty, -\frac{1}{2}) \quad \frac{-1}{2} < m < \frac{1}{2}$$

$$S = \frac{a - \sqrt{a^2 - 4} + a + \sqrt{a^2 - 4}}{2} = 2$$

$$P = \frac{(a - \sqrt{a^2 - 4})(a + \sqrt{a^2 - 4})}{a} = \frac{a^2 - 4}{a} = \frac{1}{a}$$

$$y = x^2 - 2x + \frac{1}{4} \quad \text{ضرایب صحیح}$$

$$S = \sum = \alpha + \beta \rightarrow \beta = \sum - \alpha$$

$$1x = (x - \alpha)^2 + 3x^2 \rightarrow 4x^2 - 2\alpha x + \alpha^2 = 0 \rightarrow (\alpha - 1)^2 = 0 \rightarrow \alpha = 1 \rightarrow \beta = \sum - 1 = 2$$

$$\alpha\beta = -1 \times 2 = -2 \rightarrow \frac{m+2}{2} = -2 \rightarrow m = -6$$

$$\frac{-b}{ra} = 2 \rightarrow b = -2a$$

$$\frac{-\Delta}{4a} = 4 \rightarrow \frac{-b^2 + 4ac}{4a} = 4 \rightarrow \frac{-4a^2 + 4a}{4a} = 4 \rightarrow -a + 1 = 4 \rightarrow a = -3$$

$$y = -x^2 + 3x + 4 = (x - 0)(x + 4) \quad a < 0$$

$$\rightarrow \text{بالاترین نقطه: } (-1, 0)$$

$$\alpha\beta = \frac{9\beta}{\alpha} \rightarrow \alpha^2 = 9 \rightarrow \alpha = \pm 3$$

$$\alpha + \beta = \frac{v}{\alpha} \rightarrow \beta = \frac{v}{\alpha} \rightarrow \beta = \frac{v}{\alpha} \rightarrow \alpha = -v$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{S}{P} = \frac{\frac{v}{4}}{\frac{v}{4}} = \frac{v}{4\beta} = \frac{v}{4} \times \frac{\alpha}{v} = \frac{v}{4}$$

(5)

f

$$\alpha^2 = -m\alpha + r_m \rightarrow \alpha^2 - m\beta = \Lambda \rightarrow -m(\alpha + \beta) + r_m = \Lambda \quad S = -m$$

$$\rightarrow m^2 + r_m - \Lambda = 0 \quad m = -\frac{r_m}{2} \pm \sqrt{\frac{r_m^2}{4} - \Lambda}$$

$$S = -m \Rightarrow -r$$

(5)

y

$$\frac{-\Delta}{\epsilon a} = \Lambda \rightarrow \frac{-b^2 + \epsilon ac}{\epsilon a} = \Lambda \rightarrow \frac{-14 + r_m^2 + r_m \Lambda}{\epsilon m} = \Lambda$$

$$\rightarrow r_m^2 - r_m - 14 = 0 \rightarrow m^2 - r_m - \Lambda = 0 \rightarrow m = \frac{r_m}{2} \pm \sqrt{\frac{r_m^2}{4} - \Lambda}$$

$$y = -r_m^2 + r_m + 4 \rightarrow \frac{y}{\epsilon} = (n+1)(n+4)$$

$$n = \frac{y}{\epsilon} - 1 \pm \sqrt{\left(\frac{y}{\epsilon} - 1\right)^2 + 4}$$

(15)

A

$$\frac{-b}{\epsilon a} = r \rightarrow b = -\epsilon a \quad c = \epsilon$$

$$\frac{-\Delta}{\epsilon a} = 4 \rightarrow \frac{-b^2 + \epsilon ac}{\epsilon a} = 4 \rightarrow \frac{-14a^2 + 14a}{\epsilon a} = 4 \rightarrow -\epsilon a + \epsilon = 4 \rightarrow a = \frac{1}{\epsilon}$$

$$y = -\frac{1}{\epsilon} r^2 + r + \epsilon$$

$$\rightarrow b = r$$

(5)

$$\omega_{\text{موج}}: y = r^2 + r - \frac{1}{\epsilon} \rightarrow \frac{y}{\epsilon} = \frac{r^2}{\epsilon} + \frac{r}{\epsilon} - \frac{1}{\epsilon} \rightarrow \frac{y}{\epsilon} = \frac{r^2}{\epsilon} + \frac{r}{\epsilon} - \frac{1}{\epsilon}$$

$$r = \Lambda(a+1) + r_a^2 + 4a + r = 0 \rightarrow r_a^2 - r_a - 1 = 0 \rightarrow a = \frac{r_a^2}{r} + 1$$

$$a = -1 \rightarrow r^2 + r - 4 + r = 0 \rightarrow r = 0 \rightarrow \text{no solution, } \checkmark$$

$$a = r \rightarrow r^2 - \Lambda r + r^2 + 1 + r = 0 \rightarrow r^2 - \Lambda r + \epsilon \Lambda = 0 \rightarrow \Delta < 0 \quad X$$

$$a = 1 \begin{cases} a = r \\ a = 4 \end{cases}$$

$$a = \frac{1}{r} \begin{cases} a = r \\ a = \frac{1}{r} \end{cases}$$

(15)