

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

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

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

$$\Delta > 0 \rightarrow 20 - 4m^2 > 0 \rightarrow m^2 < \frac{5}{2} \rightarrow -\frac{\sqrt{10}}{2} < m < \frac{\sqrt{10}}{2}$$

$$I.R: (-\infty, 0) \cap (-\frac{\sqrt{10}}{2}, \frac{\sqrt{10}}{2}) = (-\infty, -\frac{\sqrt{10}}{2})$$

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$$S = \frac{9 - \sqrt{5} + 9 + \sqrt{5}}{2} = 9$$

$$P = \frac{(9 - \sqrt{5})(9 + \sqrt{5})}{9} = \frac{9 - 5}{9} = \frac{4}{9}$$

$$y = x^2 - 2x + \frac{4}{9}$$

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$$S = 2 = \alpha + \beta \rightarrow \beta = 2 - \alpha$$

$$S = 2 \quad P = \frac{m}{2} + 1$$

$$14 = (2 - \alpha)^2 + 3\alpha^2 \rightarrow 14\alpha^2 - 8\alpha + 2 = 0 \rightarrow (\alpha - 1)^2 = 0 \rightarrow \alpha = 1 \rightarrow \beta = 2 - 1 = 1$$

$$\alpha\beta = -1 \times 1 = -1 \rightarrow \frac{m+2}{2} = -1 \rightarrow m = -4$$

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$$\frac{-b}{2a} = 2 \rightarrow b = -4a$$

$$c = a$$

$$b = 2$$

$$\frac{-\Delta}{4a} = 9 \rightarrow \frac{-b^2 + 4ac}{4a} = 9 \rightarrow \frac{-16a^2 + 4a^2}{4a} = 9 \rightarrow -4a + a = 9 \rightarrow a = -1$$

$$y = -x^2 + 2x + 0 = (x-1)(x+1) \quad a < 0$$

$$\rightarrow \text{محل ها: } (-1, 0)$$

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

$$\alpha + \beta = \frac{v}{\alpha} \rightarrow \beta = \frac{v}{\alpha} - \alpha \rightarrow \beta = \frac{v}{3} - 3 \rightarrow \alpha = -3$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{5}{p} = \frac{\frac{v}{4}}{\frac{v}{4\beta}} = \frac{v}{4\beta} = \frac{v}{4 \times \frac{v}{3}} = \frac{3}{4}$$

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

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

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

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

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

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

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

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

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

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

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

$$a = -1 \rightarrow n^2 + r - 4 + r = 0 \rightarrow n = 0 \rightarrow \text{الحل هو } \checkmark$$

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

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