

$$x^r - mx + r = 0$$

$$\alpha B^r = \varepsilon$$

$$\alpha B = r \rightarrow \alpha = \frac{r}{B} = \frac{\frac{r}{B} \cdot B^r}{B^r} = \frac{r}{B^r} \cdot B^r = \frac{r}{B^r} \cdot \varepsilon$$

$$\alpha + B = m$$

$$\Rightarrow \frac{r}{\varepsilon} + \frac{\varepsilon}{B^r} = \frac{rB + \varepsilon^2}{B^r \varepsilon} = \frac{rB}{B^r \varepsilon}$$

$$x^r - \frac{rB}{B^r \varepsilon} + r = 0 \quad \Delta > 0 \quad \checkmark$$

1, 1, 0

$$x^r - \varepsilon x + m = 0$$

$$\alpha = rB$$

$$\alpha + B = \varepsilon - \varepsilon B = \varepsilon \rightarrow B = 1, \alpha = r$$

$$x^r - rx + r = 0 \quad \Delta > 0 \quad \checkmark$$

1, 1, 0

$$P(x) = r$$

$$x^r - vx + r = 0 \rightarrow \alpha B = r \Rightarrow \alpha = \frac{r}{B} \rightarrow \alpha^r + \frac{1}{B^r} = \alpha^r + B^r \quad s = v, p = r$$

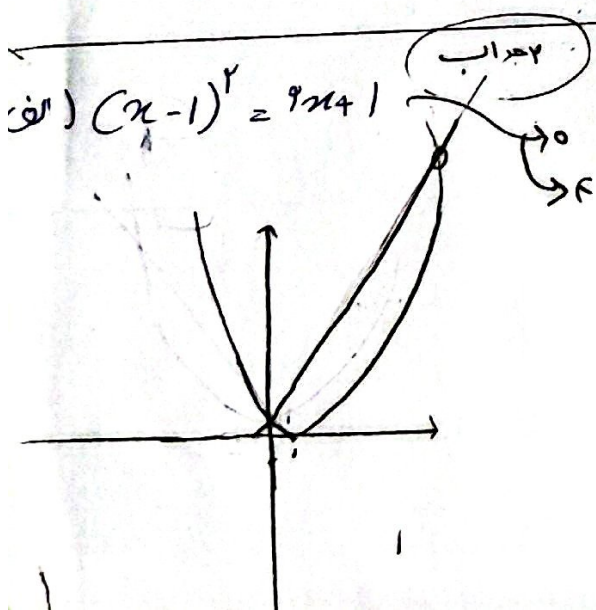
$$\alpha^r + \frac{1}{B^r} \Rightarrow \alpha^r + B^r = (\alpha + B)^r - r\alpha B(\alpha + B) = v^r - r(r)(v) = r \cdot 0 = 0$$

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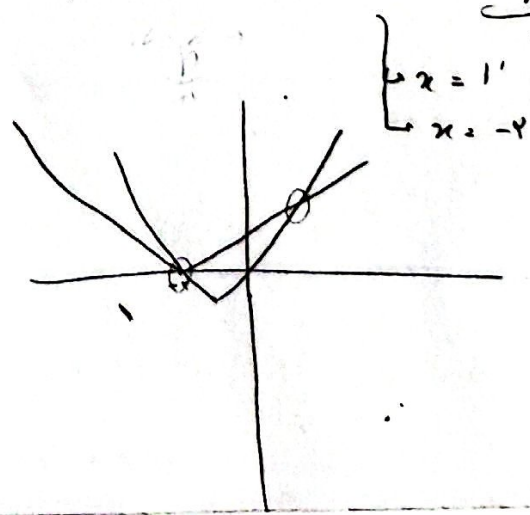
$$h(t) = -\omega t^r + \omega_0 t = 0 \rightarrow t^r - \omega t = 0 \quad \begin{cases} t=0 & \alpha \\ t=\omega & \checkmark \end{cases}$$

$$\frac{-\Delta}{\varepsilon a} = \frac{-(\omega_0^r - \omega^r)}{-\varepsilon_0} = \frac{r\omega_0}{r} = \omega_0$$

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ج) $x^r + rx = |x+r|$ جواب



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$$y = -x^2 + bx + 3$$

$$-\frac{\Delta}{4a} = \sqrt{} \rightarrow -\frac{(b^2 - 4ac)}{4a} = \sqrt{} \rightarrow \frac{(b^2 + 12)}{4} = \sqrt{} \rightarrow b^2 + 12 = 4\sqrt{} \rightarrow b^2 = 4\sqrt{} - 12 \rightarrow b = \pm \sqrt{4\sqrt{} - 12}$$

$$\Delta > 0 \rightarrow b^2 - 4ac > 0 \rightarrow b^2 - 12 > 0 \rightarrow b^2 > 12 \rightarrow b > \sqrt{12}$$

$$a) f(x) = x^2 + 2x + 3$$

$$x^2 = t \rightarrow t^2 + 2t + 3 = 0 \rightarrow t = -1 \pm \sqrt{1 - 9} = -1 \pm \sqrt{-8}$$

$$b) f(x) = (x-1)^2 - 2(x-1) - 15$$

$$x-1 = t \rightarrow t^2 - 2t - 15 = 0$$

$$(t-5)(t+3) = 0 \rightarrow t = 5 \text{ or } t = -3 \rightarrow x = 6 \text{ or } x = -2$$

$$f(x) = 0 \rightarrow x^2 = -1 \rightarrow x = \pm i$$

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

$$\alpha = \beta + 2 \rightarrow S = \alpha + \beta = \beta + 2 + \beta = 2\beta + 2 = 4 \rightarrow \beta = 1 \Rightarrow \alpha = 3$$

$$P = \frac{m}{x} = 4 \Rightarrow m = 12$$

$$x^2 - 14x + 12 = 0 \rightarrow x = 1 \pm \sqrt{1 - 12} = 1 \pm \sqrt{-11}$$

$$3x^2 - 4x + m - 1 = 0$$

$$2\alpha - \beta = 4$$

$$\alpha + \beta = 2 \rightarrow \beta = 2 - \alpha \Rightarrow 2\alpha - 2 + \alpha = 4 \rightarrow 3\alpha = 6 \rightarrow \alpha = 2, \beta = 0$$

$$\frac{m-1}{3} = 0 \rightarrow m-1 = 0 \rightarrow m = 1$$

$$3x^2 - 4x = 0 \rightarrow x = 0 \text{ or } x = \frac{4}{3}$$

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

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

$$\Delta > 0 \rightarrow 64 - 4(-m)(m^2 - 2) > 0 \rightarrow 16 + 4m(m^2 - 2) > 0 \rightarrow 16 + 4m^3 - 8m > 0 \rightarrow 4m^3 - 8m + 16 > 0 \rightarrow m^3 - 2m + 4 > 0$$