

$$x^r - \omega x + r = 0 \quad \beta^r = \omega \beta - r$$

$$\Rightarrow \alpha + \beta = \omega$$

$$\Rightarrow \alpha \beta = r \Rightarrow \alpha = \frac{r}{\beta}$$

$$\frac{\alpha + \beta^{\omega}}{\omega \beta^r} = \frac{\frac{r}{\beta} + \beta^{\omega}}{\omega \beta^r} = \frac{r + \beta^{\omega+1}}{\omega \beta^{r+1}} = \frac{r + 21\omega \beta - 9\omega^2}{\omega(23\beta - 1)} = \frac{21\omega \beta - 9\omega^2}{11\omega \beta - \omega} = \frac{23\beta - 9}{23\beta - 1} = 19$$

$$y = ax^r + bx + c$$

$$x_{ext} = \frac{(r - 1/\omega)}{2} = \frac{r}{2} \quad \frac{-b}{2a} = \frac{r}{2} \Rightarrow \frac{-b}{a} = r = 1/\omega$$

$$\text{اختلاف در علامت} = \frac{-b + \sqrt{\Delta} + b + \sqrt{\Delta}}{2a} = \frac{2\sqrt{\Delta}}{2a} = \frac{\sqrt{\Delta}}{a}$$

$$x^r + rkx + \omega = 0 \rightarrow \frac{\sqrt{\Delta}}{a} = \frac{\sqrt{r^2k^2 - 4\omega}}{1} = \frac{r}{r}k \Rightarrow rk^2 - 4\omega = \frac{16}{9}k^2 \Rightarrow rk^2 - \frac{16}{9}k^2 - 4\omega = 0$$

$$\Rightarrow k = 3$$

$$\left[\frac{k^r}{r} \right] = \left[\frac{9}{3} \right] = 3$$

$$y_{ext} = 1$$

$$x_{ext} = \frac{(\omega + r)}{r} = -1 \quad \left. \begin{array}{l} y_{ext} = 1 \\ x_{ext} = -1 \end{array} \right\} ext \left| \begin{array}{l} -1 \\ 1 \end{array} \right.$$

$$y = ax^r + bx + c$$

$$y = \omega a + rax + c$$

$$y = 9a + 3b + c$$

$$y = 2\omega a - \omega b + c$$

$$1 = 9a + 3b + c$$

$$1 = 2\omega a - \omega b + c$$

$$1 = -2c + 4c + c \Rightarrow 3c = 1 \Rightarrow c = \frac{1}{3}$$

$$-x^r + \omega x + m = f(x)$$

$$\Delta > 0 \Rightarrow r\omega + 4m > 0 \Rightarrow 4m > -r\omega \Rightarrow m > \frac{-r\omega}{4} \Rightarrow m > -9/4$$

$$f(-9/4) > 0 \Rightarrow r/4 + \omega + m = r/4 + \omega + m > 0 \Rightarrow m > -r/4 - \omega$$

pl. 20/5

$$y = mx^r - 12x + \omega m - 1$$

$$y = \frac{-\Delta}{\epsilon a} = \frac{-12\epsilon + r \cdot m^r - \epsilon m}{\epsilon m} \Rightarrow r \cdot m^r - \epsilon m - 12\epsilon = \Delta m \Rightarrow r \cdot m^r - 12m - 12\epsilon = 0 \quad \begin{cases} m = -12/\epsilon \\ m = \boxed{r} \end{cases}$$

$$y = rx^r - 12x + 12 \Rightarrow x_{ext} = \frac{+12}{r} = \boxed{r}$$

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$$x^r + r(a+1)x + ra - 1 = 0$$

$$\left. \begin{matrix} \alpha & \alpha, \beta \\ \downarrow & \downarrow \downarrow \\ T_1 & T_r \quad T_r \end{matrix} \right\} T_1 T_r = T_r^r \rightarrow \underbrace{\alpha \beta = \alpha^r}_{\frac{\epsilon}{a}} \left\} \frac{ra-1}{1} = \alpha^r \Rightarrow \alpha^r - ra+1 = 0 \Rightarrow \boxed{a=1}$$

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$$x^r - vx^r - \omega = 0$$

$$s = -\frac{b}{a} = v$$

$$p = \frac{c}{a} = -\omega$$

$$rp^r - \beta p + rs$$

$$\omega \cdot + 1 \cdot \omega + 12 = \boxed{149}$$

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$$kx^r - \epsilon x - \gamma = -\epsilon x - \epsilon \Rightarrow kx^r - \epsilon = 0$$

$$\frac{-\Delta}{\epsilon a} = \frac{-12 - \epsilon k}{\epsilon k} = -\epsilon x - \epsilon \Rightarrow -\frac{\epsilon}{k} - \gamma = -\epsilon x - \epsilon \Rightarrow -\frac{\epsilon}{k} - \gamma = -\epsilon x \Rightarrow x = \frac{1}{k} + \frac{1}{r}$$

$$k\left(\frac{1}{k^r} + \frac{1}{r} + \frac{1}{k}\right) - \epsilon = 0 \Rightarrow \frac{1}{k} + \frac{1}{r}k - 1 = 0 \Rightarrow 1 + \frac{1}{r}k^r - k = 0 \Rightarrow k = r$$

$$x_{ext} = \frac{\epsilon}{r} = 1 \Rightarrow r - \epsilon - \gamma = -\Delta = \gamma_{ext}$$

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$$y = -mx^r + mx + 1$$

$$y = -x - m$$

$$\left. \begin{matrix} y = -mx^r + mx + 1 \\ y = -x - m \end{matrix} \right\} \begin{matrix} \diagup \\ \diagdown \end{matrix} \rightarrow -0 < m \Rightarrow m < 0$$

$$-mx^r + mx + 1 > -x - m \Rightarrow -mx^r + (m+1)x + m+1 > 0 \Rightarrow m > -1$$

$$\begin{matrix} -1 < m < 0 \\ \downarrow \\ \boxed{\text{Graph of } y = -mx^r + mx + 1} \end{matrix}$$

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