

$$y = m x^r - 12x + \omega m - 1 \quad m = \frac{-b}{r a} \Rightarrow b = -1 \Rightarrow m = -\frac{-12}{r} = \frac{12}{r}$$

$$y_{min} = a \left(\frac{-b}{r a} \right)^r + b \left(\frac{-b}{r a} \right) + c \Rightarrow y_{min} = m \left(\frac{4}{m} \right)^r - 12 \times \frac{4}{m} (\omega m - 1)$$

$$y_{min} = \frac{-12}{m} + \omega m - 1 \Rightarrow \frac{-12}{m} + \omega m - 1 = r \Rightarrow -12 + \omega m^r = r m$$

$$m = r \Rightarrow \omega = 1 \quad \checkmark (\min)$$

$$m = \frac{-12}{\omega} \Rightarrow \omega = -\frac{12}{m} \quad \checkmark$$

$$\omega m^r - r m - 12 = 0 \quad \begin{cases} m = r \\ m = -\frac{12}{\omega} \end{cases}$$

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

$$x + B = -r(a+1) \Rightarrow r a - 1$$

$$x^r = x B = r a - 1 \Rightarrow x^r - r a + 1 = 0 \Rightarrow (x - 1)^r = 0 \Rightarrow x = 1$$

$$x^r - r(1+1)x + (r \times 1 - 1) = x^r - 2r x + r - 1 = 0 \Rightarrow x = -1 \pm \sqrt{r} \Rightarrow x = -1 - \sqrt{r} \Rightarrow B$$

$$a = 1$$

$$x^r - v x^r - a = 0 \Rightarrow x^r = t \Rightarrow x^r - v t - a = 0 \Rightarrow \Delta = 9a - 4 = 49$$

$$t = \frac{v \pm \sqrt{49}}{r} \Rightarrow t_1 = \frac{v + \sqrt{49}}{r} \quad t_2 = \frac{v - \sqrt{49}}{r}$$

$$S = 0 \Rightarrow r S P = 0 \Rightarrow r S = 0$$

$$x^r = \frac{v + \sqrt{49}}{r} \Rightarrow x_{1,2} = \pm \sqrt{\frac{v \pm \sqrt{49}}{r}} \Rightarrow P = \frac{v + \sqrt{49}}{r}$$

$$r P^r = r \left(\frac{v + \sqrt{49}}{r} \right)^r = \frac{118 + 15\sqrt{49}}{r} = \frac{118 + 15 \times 7}{r} = \frac{223}{r}$$

$$y = k x^r - f x - 4 \quad y = -f x - f$$

$$x_{crit} = \frac{-(-f)}{r} = \frac{f}{r} = \frac{r}{r} = 1$$

$$y_{crit} = k \left(\frac{r}{k} \right)^r - f \left(\frac{r}{k} \right) - 4 \Rightarrow y_{crit} = \frac{-f}{k} - 4$$

$$y_{crit} = -f \left(\frac{r}{k} \right) - f \Rightarrow y_{crit} = \frac{-1}{k} - f = -1$$

$$y_{crit} = -1$$

$$k = \frac{f}{r} = 1$$

$$-m x^r + m x + 1 = -m - x \Rightarrow -m x^r + m x + 1 + m + x = 0$$

$$m x^r - (m+1)x - (m+1) = 0 \Rightarrow \Delta = (- (m+1))^2 - 4 \times m \times (- (m+1))$$

$$(m+1)(m+1) < 0 \Rightarrow m = -\frac{1}{\omega}$$

$$m = -1$$

$$r = 1$$