

$$f\left(\frac{\sqrt{r}}{r}+1\right) = r\left(\frac{\sqrt{r}}{r}+1\right)^r - f\left(\frac{\sqrt{r}}{r}+1\right)$$

$$r\left(\frac{\sqrt{r}}{r}+1+\sqrt{r}\right) = \frac{r}{r} + r + \cancel{r\sqrt{r}} - \cancel{r\sqrt{r}} - \epsilon = \frac{r}{r} - r = \underline{-\frac{1}{r}}$$

6

$$f(a) = \frac{a+1}{a-1} \quad f(1) = 0 \quad f(-1) = 1$$

$$f\left(\frac{a+1}{a-1}\right) = \frac{\frac{a+1}{a-1}+1}{\frac{a+1}{a-1}-1} = a \Rightarrow \frac{\frac{a+1+a-1}{a-1}}{\frac{a+1-a+1}{a-1}} = \frac{\frac{2a}{a-1}}{\frac{2}{a-1}} = a \quad a \neq 1$$

$$D = \mathbb{R} - \{1\}$$

7

$$x^r - rx = -\epsilon$$

$$x^r - \epsilon x + r$$

$$(x-r)^r = 0$$

$$x = r$$

$$\sqrt{x^r+1} = r \sqrt{x^r-1}$$

$$x^r - 1 = \epsilon$$

$$x^r = \omega$$

$$x = \pm \sqrt[r]{\omega}$$

$$a = \pm \sqrt{\omega}$$

8

$$x+r = -r$$

$$x = -r$$

$$f(-r) = r^2 + r_0 + r = \sqrt{r}$$

$$f(r) \times f(-r) = r \times \sqrt{r} = \underline{r^{\frac{3}{2}}}$$

$$x+r = r$$

$$x = 1$$

$$f(1) = 1 - \omega + r = r$$

9

$$r \cos^r + \omega \cos = r, \omega$$

$$\cos = t$$

$$1t^r + 10t - 1 = 0$$

$$t = \frac{-1 \pm \sqrt{100 + 4r}}{19} \Rightarrow t = \frac{-1 \pm 11}{19} \begin{cases} t = \frac{1}{2} \rightarrow \cos = \frac{1}{2} \\ t = -\frac{10}{19} \end{cases}$$

$$\sin^r = 1 - \cos^r = 1 - \frac{1}{\epsilon} = \frac{r}{\epsilon}$$

$$\tan^r = \frac{\frac{r}{\epsilon}}{\frac{1}{\epsilon}} = r \quad f(r, \omega) = r$$

10