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مسائل

$$\cot \frac{\pi}{4} \times \frac{y}{x} = \cot \left(\frac{\pi}{4} \right) > 1 \rightarrow \sqrt{(\sqrt{x})^2 + 1} = 2$$

$$r \cos^2 \theta \rightarrow r \times \left(\frac{1}{r} \right)^2 = \frac{1}{r}$$

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$$f\left(\frac{1}{r}\right) = \sqrt{\frac{2 \times 1 - 1}{2}} = \frac{\sqrt{2}}{2}$$

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$$g(\sqrt{r}) = \frac{\sqrt{r}}{1 - \sqrt{r}} \times \frac{1 + \sqrt{r}}{1 + \sqrt{r}} \rightarrow \left[\frac{\sqrt{r}}{1 - \sqrt{r}} \right] = \frac{1}{1 - \sqrt{r}}$$

$$\sin \frac{\pi}{4} = \frac{\sqrt{2}}{2}$$

$$\frac{\sqrt{r}}{r} \sqrt{1 - \left(\frac{\sqrt{r}}{r} \right)^2} = \frac{\sqrt{r}}{r} \times \frac{\sqrt{r}}{r} = \frac{1}{r}$$

$$f \circ g(x) = \{(e, d), (r, d), (e, 12), (1, 12)\}$$

$$g \circ f(x) = \{\}$$

$$f \circ f(x) = \emptyset$$

$$g \circ g(x) = \{(r, 1), (1, r), (e, 1)\}$$

$$2) f\left(\frac{r_{n+1}}{n-r}\right) = r_{n+1} + a$$

$$\frac{r_{n+1}}{n-r} = t \rightarrow n = -\frac{r+1}{t-r} = \frac{r+1}{t-r}$$

$$f(t) = r \times \frac{r+1}{t-r} + a = \frac{r(r+1)}{t-r}$$

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

$$\left(n + \frac{1}{n}\right)^r = n^r + \frac{1}{n^r} + r \times n \times \frac{1}{n} \times \left(n + \frac{1}{n}\right) \xrightarrow{n + \frac{1}{n} = t} t^r = n^r + \frac{1}{n^r} + r t$$

$$\hookrightarrow n^r + \frac{1}{n^r} = t^r - r t$$

$$f(t) = t^r - r t$$

$$g(x) = g(r\sqrt{x}) = g_0 f(n) = g(f(x)) =$$

$$\rightarrow f(n) = 1 \rightarrow n = 1$$

$$\rightarrow f(n) = r\sqrt{x} \rightarrow n = r$$

$$r = 1$$