

۱۹،۵ آفرین

$$\sin \varphi_0 + \cos \varphi_0 = \frac{\sqrt{r} + 1}{r} = \frac{\sqrt{r} + r}{r} = 1 + \left(\frac{\sqrt{r} + r}{r}\right)^2 - 1 = \left(\frac{\sqrt{r} + r}{r}\right)^2 = \frac{r + 2\sqrt{r} + r}{r} = \frac{2r + 2\sqrt{r}}{r} = 2 + \frac{2\sqrt{r}}{r} = 2 + \frac{2}{\sqrt{r}}$$

$\frac{2}{\sqrt{r}} + 2 - \frac{2}{\sqrt{r}} - r = \boxed{\frac{1}{r}}$ ✓

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

$\frac{2a}{2} = a \quad \frac{2a}{a-1} = \frac{2a}{a-1} \quad \frac{a+1}{a-1} \quad \boxed{\mathbb{R} - \{1\}}$ ✓

$$g(a) = \sqrt{a^2 - 1} \quad f(\sqrt{a^2 - 1}) = \frac{\sqrt{a^2 - 1} + 1}{\sqrt{a^2 - 1} - 1} = 0 \quad \left(\sqrt{a^2 - 1} - 1\right)^2 = 0$$

$|\sqrt{a^2 - 1}| = r \quad \sqrt{a^2 - 1} = r \quad a^2 - 1 = r^2 \quad a^2 = r^2 + 1 \quad \boxed{a = \pm \sqrt{r^2 + 1}}$ ✓

$a^2 - 1 = -r \Rightarrow a^2 = -r + 1$

$$m^2 - dm + 9 = (m - r)(m - r) = f(m + r) \quad \frac{m+r}{m=1} = r \Rightarrow 1 - d + 9 = \frac{r}{m} \quad m = -r \quad m^2 + r^2 + 9 = \boxed{18}$$

$r^2 \times r = \boxed{18r}$ ✓

$$r \cos \varphi_m + d \cos m = r, d \quad r \cos \varphi_m + d \cos m - r, d = 0 \quad \Delta = 1 / \sqrt{d} = 9 \quad \frac{-d \pm 9}{1} \Rightarrow \frac{1}{r} \text{ و } \frac{-r}{r}$$

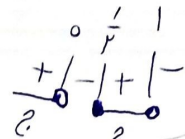
$\cos m = x \quad \boxed{r} = \left(\sqrt{r}\right)^2 \leftarrow \tan \varphi_0 \quad m = \varphi_0 \quad \cos \varphi_0 = \frac{1}{r} \quad \cos m = \frac{1}{r} \quad \cos m = \frac{-r}{r} \times$ ✓

۱۹، ۰۶، ۵۵

به نام کسی که از نسبت محیط به قطر دایره آنگاه است.

محمد جواد کریمی

$$\frac{n-1}{n} - \frac{n}{n-1} \geq 0 \Rightarrow \frac{n^2 + 1 - 2n - n^2}{n^2 - n} \geq 0 \Rightarrow \frac{1-2n}{n^2-n} \geq 0$$



$$(0, \frac{1}{n}) \cup (\frac{1}{n}, 1)$$

$$\frac{n-2n-1}{n^2+n} = \frac{-2-n}{n^2+n} = \frac{-2-n}{n(n+1)} \rightarrow 0, -1$$

$$\frac{3n+4n-1}{n^2-2+n} = \frac{7n-1}{n^2+n-2} = \frac{7n-1}{(n-1)(n+2)} \rightarrow -\frac{1}{2}, 7$$



$$R - \{ -\frac{1}{2}, -\frac{1}{n}, \frac{1}{n}, 1 \}$$

$$\left(\left(\frac{1}{n} \right)^n - 9 \right) (3n^2 - 4n) \geq 0 \Rightarrow \frac{1}{n} - \frac{4}{3} \geq 0 \Rightarrow \frac{1}{n} \geq \frac{4}{3} \Rightarrow n \leq \frac{3}{4}$$

$$(1, 5)$$

$$\sqrt{y+1} = 3 - \sqrt{n-1} \Rightarrow y+1 = 9 + n - 1 - 6\sqrt{n-1} \Rightarrow y = n - 1 - 6\sqrt{n-1}$$

$$D \neq [1, 8]$$

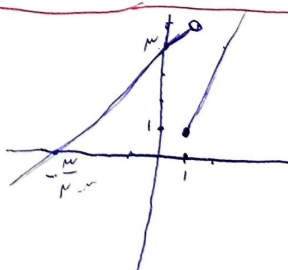
$$\frac{n^2-1}{n^2-n-2} \geq 0 \Rightarrow \frac{(n-1)(n+1)}{(n-2)(n+1)} \geq 0 \Rightarrow \frac{n-1}{n-2} \geq 0 \Rightarrow (-\infty, -1) \cup (2, +\infty)$$

$$3n^2 + an + 3 \geq 0 \Rightarrow \Delta \leq 0 \Rightarrow a^2 - 36 \leq 0 \Rightarrow -6 \leq a \leq 6$$

$$b = 6$$

$$2m+3 \Rightarrow n = 2m+3 \Rightarrow m \leq -3$$

$$f(n) - m \geq 0 \Rightarrow y \geq \sqrt{m}$$



$$3m-2 \Rightarrow m = \frac{3m-2}{3} \Rightarrow m = 1$$

چون در (n) f برای n بزرگتر از 1 به نفع است

هر بزرگتر از 1 برای دامنه g(n) به نفع است



Samsung Quad Camera

گالکسی با Galaxy A31

ب-۲) $\sqrt{x-1} + \sqrt{y+1} = 3$, $\underbrace{\sqrt{y+1}}_{\text{مجموعه نامتناهی!}} = \underbrace{3 - \sqrt{x-1}}_{\text{مجموعه نامتناهی!}} \rightarrow 3 - \sqrt{x-1} \geq 0 \rightarrow \sqrt{x-1} \leq 3 \rightarrow x \leq 10$

$\downarrow$
 $x-1 \geq 0 \rightarrow x \geq 1$ I

I, II $\rightarrow 1 \leq x \leq 10 \rightarrow D_f = [1, 10]$