

$$f(x) = \sqrt{x} - f \quad f\left(\sin \frac{\pi}{4} + \cos \frac{\pi}{4}\right) = \frac{1+\sqrt{2}}{2}$$

$$\sqrt{x}(x-\sqrt{x}) = \frac{1+\sqrt{2}-f}{1} = \frac{\sqrt{2}-f}{1}$$

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

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

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

$$1R - \{1\}$$

$$d-1 \neq 0 \quad a \neq 1$$

$$f(x) = \sqrt{x} - f \quad f(g(a)) = -f \quad f(\sqrt{a^2-1}) =$$

$$g(x) = \sqrt{x^2-1} \quad a=1 \quad (\sqrt{a^2-1})^2 - f \sqrt{a^2-1} = a^2-1 - f \sqrt{a^2-1} = -f$$

$$g(a) = \sqrt{a^2-1}$$

$$a^2-1 - f \sqrt{a^2-1} + f = 0$$

$$+f - f + f = 0$$

$$(f-1)^2 = 0$$

$$(\sqrt{a^2-1}-1)^2 = 0$$

$$\sqrt{a^2-1} = 1$$

$$a^2-1 = 1$$

$$a^2 = 2 \Rightarrow a = \pm \sqrt{2}$$

$$f(x+1) = x^2 - ax + 1$$

$$f(f(x)) \times f(-1) = ?$$

$$f = x+1$$

$$\Rightarrow x=1$$

$$-1 = x+1$$

$$\Rightarrow x = -2$$

$$(x-1)(x-1) = 1$$

$$(x-1)(x-1) = 0 \vee 1$$

$$x = 1$$

$$x = -2$$

$$f(\cos^2 x + a \cos x) = \tan^2 x \quad \sin^2 x = \frac{1}{2} \quad \cos x = \frac{1}{2} \quad \cos^2 x = \frac{1}{4}$$

$$f(\cos^2 x + a \cos x) = \tan^2 x \Rightarrow \tan^2 x = \frac{1}{4}$$

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$$\cos^2 x + a \cos x - 1 = 0$$

$$(\cos x + 1)(\cos x - 1) = 0$$

$$\cos x = 1 \quad \cos x = -1$$

$$x = 0 \quad x = \pi$$

$$\Rightarrow \tan^2 x = 0$$