

دوازدهم دبیرستان

ریاضیات

نمایش

به نام خدا

$$g(x) = f(\tan^2 x + \sqrt{2} \cos x) \text{ و } g'(\frac{\pi}{4}) = \sqrt{2}$$

①

$$g'(x) = (2 \tan x \cdot \frac{1}{\cos^2 x} - \sqrt{2} \sin x) f'(\tan^2 x + \sqrt{2} \cos x)$$

$$g'(\frac{\pi}{4}) = (2 \times 1 \times 1 - 1) f'(1+1) = 2f'(2) = \sqrt{2} \quad f'(2) = \frac{\sqrt{2}}{2}$$

$$f'(\frac{\sqrt{2}}{2}) = 2g'(\frac{\sqrt{2}}{2}) \Rightarrow (f - 2g)'(\frac{\sqrt{2}}{2}) \Rightarrow \sin(\frac{\sqrt{2}}{2}) = -\frac{1}{2}$$

②

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

$$-\cos^2 x \rightarrow \sin^2 x$$

$$(-\frac{1}{2}) \checkmark$$

$$f\sqrt{x} + \frac{a}{2\sqrt{x}} \times 0 = f\sqrt{x}$$

$$1\sqrt{\frac{2}{2}}a = 2\sqrt{2}$$

③

$$(\frac{2}{f})' \rightarrow -f\sqrt{x} + \frac{a}{2\sqrt{x}} \times 0 = -f\sqrt{x}$$

$$a = \frac{1}{2}$$

$$-fa + 2 - a = -1 \quad 1 - 2a = -1 \quad a = \frac{2}{3} \quad f(1) = -a = -\frac{2}{3} = -0.6$$

$$a(2x+1) - 2(ax-1) = \frac{1}{x}$$

$$\frac{2+a}{x} = \frac{1}{x}$$

④

$$(2x+1)^2 \xrightarrow{\Delta=0} (14-2a)^2 - f(14)/14 = 0$$

$$\begin{cases} a = \frac{f}{2} \\ a = f \end{cases}$$

$$9x^2 + 6x + 1 = 2a + 2$$

$$\Delta = 0$$

$$36 - 6 \times 9x(-2a-2) = 0$$

$$-2a - 2 = 1 \rightarrow a = -\frac{3}{2}$$

$$\begin{cases} a = f \rightarrow x = 2 \checkmark \\ a = \frac{f}{2} \rightarrow x = -2 \times \end{cases}$$

$$14^2 + (14-2a)2 + 1 = 0 \rightarrow x = \frac{-b}{a} = \frac{-14+2a}{2} \rightarrow \begin{cases} a = f \rightarrow x = 2 \checkmark \\ a = \frac{f}{2} \rightarrow x = -2 \times \end{cases}$$

$$f'(x) = 2x^2 + a$$

$$b-a = -12 + 12 = -f \checkmark$$

$$a = -12$$

$$b = -12$$

$$x^{2n} \times p_n x^{2n-1}$$

$$= p_n \times p^m \times x^{2n-1-2m}$$

$$n=2$$

$$m = \frac{2}{2}$$

$$2m+n=9$$

$$(\frac{x^2}{2})^m$$

$$2 \checkmark$$

Subject :

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$$\frac{\sqrt{x} + 1}{\sqrt{x} - 1} = y$$

$$\sqrt{x} + 1 = y\sqrt{x} - y$$

$$\sqrt{x} = y \quad x = 9$$

1
1,0

$$f'(x) = \frac{\frac{1}{\sqrt{x}} - \frac{y}{\sqrt{x}}}{(\sqrt{x} - 1)^2}$$

$$(f^{-1})' = -1/y$$

$$\frac{-1/y}{1/y} = \left(-\frac{1}{y}\right)$$

شبه مقلوب

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

9

$$f'(1) = 4 \cdot 2x \cdot (x^2 + 1) \left(-\frac{1}{x} + 1\right) + \left(-\frac{1}{x}\right) (x^2 + 1)^2 = 12 - 4 = 8$$

2

$$\frac{f\left(\frac{\pi}{4}\right) - f\left(\frac{\pi}{2}\right)}{g\left(\frac{\pi}{4}\right) - g\left(\frac{\pi}{2}\right)}$$

$$= \frac{-1-0}{1-0} = -1$$

2

10