

مربعات

$$g\left(\frac{\pi}{2}\right) = \sqrt{r} \quad g(u) = f(\tan u + \sqrt{r} \cos u) \quad f'(u)?$$

(1)

مشتق

$$f'(u) = f(\tan u + \sqrt{r} \cos u) \times (r \tan u (1 + \tan^2 u) + -\sqrt{r} \sin u)$$

$$a = \frac{\delta}{\epsilon}$$

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

$$\Rightarrow f(r) = \frac{\sqrt{r}}{r}$$

$$f(u) = \frac{1 + \cos^2 u}{1 - \cos^2 u}, \quad g(u) = \frac{r}{r \cos u}$$

(2)

$$\frac{f'\left(\frac{\sqrt{\pi}}{4}\right) - r g'\left(\frac{\sqrt{\pi}}{4}\right)}{(f - rg)\left(\frac{\sqrt{\pi}}{4}\right)}$$

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

$$(f - rg)(u) = \frac{\cos^2 u - r \cos u}{1 - \cos^2 u} = \frac{\cos u (\cos u - r)}{1 - \cos^2 u} = -\cos u$$

$$\Rightarrow (f - rg)'(u) = \sin u$$

$$\sin\left(\frac{\sqrt{\pi}}{4}\right) = -\frac{1}{r}$$

$$f_+\left(\frac{r}{\epsilon}\right) - f_-\left(\frac{r}{\epsilon}\right) = r\sqrt{a} \quad f(u) = |\epsilon u - r| \sqrt{a} \quad a = ?$$

(3)

$$f\left(\frac{r}{\epsilon}\right) = (\epsilon u - r) \sqrt{a} \quad f_+\left(\frac{r}{\epsilon}\right) = f\left(\sqrt{\frac{r}{\epsilon}} a\right) + \frac{a}{\sqrt{\frac{r}{\epsilon}} a} (\epsilon u - r)$$

$$f\left(\frac{r}{\epsilon}\right) = (r - \epsilon u) \sqrt{a} \quad f_-\left(\frac{r}{\epsilon}\right) = -f\left(\sqrt{\frac{r}{\epsilon}} a\right) + \frac{a}{\sqrt{\frac{r}{\epsilon}} a} (r - \epsilon u)$$

$$\Rightarrow f\left(\sqrt{\frac{r}{\epsilon}} a\right) = \frac{\epsilon \sqrt{r a}}{r} = r\sqrt{a} \Rightarrow \epsilon \sqrt{r a} = r\sqrt{a} \Rightarrow r\sqrt{a} = \sqrt{r} \Rightarrow |a| = \frac{1}{r}$$

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⑤

$$a = \frac{1}{\varepsilon} - \mu = \frac{-\delta}{\varepsilon}$$

9

$$b - a = \underline{41}$$

④

①

1

نیب مقامات بر مبنی $f(x)$ و $u=2$

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

$$y\sqrt{x} - y = \sqrt{x+1} \Rightarrow \sqrt{x}(y-1) = y+1 \Rightarrow \sqrt{x} = \frac{y+1}{y-1} \Rightarrow u = \left(\frac{y+1}{y-1}\right)^2$$

$$f^{-1}(u) = \sqrt{\left(\frac{u+1}{u-1}\right) \left(\frac{-1-1}{(u-1)^2}\right)} \stackrel{u=2}{=} \sqrt{3} \left(\frac{-2}{1}\right) = -\sqrt{3}$$

$f^{-1}(u) = \left(\frac{u+1}{u-1}\right)^2$

و 5 و 3

$$f(x) = 2 \Rightarrow 2 = \frac{\sqrt{x+1}}{\sqrt{x}-1} \Rightarrow x \geq 9 \Rightarrow (f^{-1}(x)) = \frac{1}{f(x)}$$

$$f'(x) = \frac{\frac{1}{\sqrt{x}}(\sqrt{x}-1) - \frac{1}{\sqrt{x}}(\sqrt{x+1})}{(\sqrt{x}-1)^2} \stackrel{x=9}{=} \frac{\frac{1}{3}(2-2)}{4} = \frac{0}{4} = 0 \Rightarrow (f^{-1}(2)) = -1$$

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$$f(x) = (x^2+1)^{\frac{1}{2}}(a+1) \begin{cases} x=1 \Rightarrow f(x) = 1(-a+1) \\ x=0 \Rightarrow f(x) = 1(1) = 1 \end{cases}$$

$$f'(x) = \frac{2x(a+1)^{\frac{1}{2}} + (x^2+1)^{\frac{1}{2}}(a+1)'}{(x^2+1)^{\frac{1}{2}}(a+1)} = \frac{2x(a+1)^{\frac{1}{2}} + (x^2+1)^{\frac{1}{2}}(a+1)'}{(x^2+1)^{\frac{1}{2}}(a+1)}$$

$$f'(1) = \frac{2(1)(a+1)^{\frac{1}{2}} + (1^2+1)^{\frac{1}{2}}(a+1)'}{(1^2+1)^{\frac{1}{2}}(a+1)} = \frac{2(a+1)^{\frac{1}{2}} + \sqrt{2}(a+1)'}{\sqrt{2}(a+1)}$$

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$$y = \sin \alpha \cos \beta \quad \alpha = \frac{\pi}{2} \Rightarrow y = \frac{\sqrt{2}}{2} \cos \beta = 0 \Rightarrow \cos \beta = 0 \Rightarrow \beta = \frac{\pi}{2} \Rightarrow y = 1 \Rightarrow \alpha = 1$$

$$y = \sin \alpha \cos \beta \quad \alpha = \frac{\pi}{2} \Rightarrow y = \frac{1}{\epsilon} - \frac{1}{\epsilon} = 0 \Rightarrow \frac{1}{\epsilon} - \frac{1}{\epsilon} = 0 \Rightarrow \frac{1}{\epsilon} = \frac{1}{\epsilon} \Rightarrow \frac{1}{\epsilon} = \frac{1}{\epsilon} \Rightarrow \frac{1}{\epsilon} = \frac{1}{\epsilon}$$