

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

$$g'(\frac{\pi}{4}) = 1 \times 1 \times f'(\frac{1}{2}) = \sqrt{3} \quad f'(\frac{1}{2}) = \frac{\sqrt{3}}{2}$$

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

$$g(x) = \frac{1}{1 - \cos} \Rightarrow \frac{-(-\sin x)}{(1 - \cos)^2} = g'(x) = \frac{\sin x}{(1 - \cos)^2}$$

$$f'(\frac{\sqrt{x}}{2}) =$$

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$$f'(\frac{x}{\sqrt{e}}) \Rightarrow \frac{1}{\sqrt{e}} \sqrt{x} = f'(\frac{x}{\sqrt{e}})$$

$$\frac{1}{\sqrt{e}} \sqrt{x} = x \sqrt{e} \Rightarrow \sqrt{e} = \sqrt{\frac{x}{\sqrt{e}}}$$

$$1 \sqrt{e} = e \quad a = \frac{1}{e}$$

$$-e \sqrt{\frac{x}{e}} = f'(\frac{x}{e})$$

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$$f(e) = -ea + e = \frac{14}{e} + e = \frac{e^2 + 14}{e}$$

$$f'(e) = -a \Rightarrow -ea + e = -1 \Rightarrow a = \frac{e}{e}$$

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$$y = \frac{x+w}{v} \quad \frac{ax-1}{x+1} = \frac{x+w}{v} \Rightarrow vax - v = x^2 + 1x + w$$

$$x^2 + (1-v)a x + 1v = 0$$

$$a < \frac{1}{v} \quad \frac{1}{v} < a$$

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A/P

$$f(x) = \Lambda^{-1} \xi - b = \gamma \quad b = 1\gamma$$

$$f'(x) = \gamma x^{\gamma} + a = 1\gamma + a = 1 \quad a = -11 \quad b - a = 1\gamma$$

$$f'(x) = \frac{\sqrt{x}-1}{\gamma\sqrt{x}} - \frac{\sqrt{x}+1}{\gamma\sqrt{x}} = \frac{-1}{\sqrt{x}(\sqrt{x}-1)^{\gamma}} = \frac{-1}{\sqrt{x}(\frac{\gamma}{\sqrt{x}+1}-\gamma\sqrt{x})} = \frac{-1}{\gamma\sqrt{x}-\gamma} = \frac{-(\gamma\sqrt{x}+\epsilon)}{\gamma}$$

$$f(0) = 1 \quad -11 = \frac{1+\Lambda a - \Lambda}{1} = \Lambda a - \gamma \Rightarrow -\epsilon = \Lambda a \Rightarrow -\frac{1}{\gamma} = a$$

$$f(-1) = \Lambda(a+1) = -\Lambda a + \Lambda$$

$$f'(1) = \underbrace{\gamma \times \gamma x (x^{\gamma}+1)^{\gamma} \left(-\frac{1}{\gamma} x+1\right)}_{\gamma \times \gamma \times \gamma \times \frac{1}{x}} + \underbrace{\frac{-1}{\gamma} (x^{\gamma}+1)^{\gamma}}_{\frac{-1}{x} \times \gamma} = \Lambda$$

$$f\left(\frac{\gamma}{\epsilon}\right) = 1x - 1 = -1$$

$$f\left(\frac{\gamma}{\epsilon}\right) = \frac{\sqrt{x}}{\gamma} \times 0 = 0$$

$$\frac{-1}{\frac{\gamma}{\epsilon}} = -\frac{\epsilon}{\gamma}$$

$$f\left(\frac{\gamma}{\epsilon}\right) = 1$$

$$f\left(\frac{\gamma}{\epsilon}\right) = 0$$

$$\frac{+1}{\frac{\gamma}{\epsilon}} = \frac{\epsilon}{\gamma}$$

$$\Rightarrow \frac{-\frac{\epsilon}{\gamma}}{\frac{\epsilon}{\gamma}} = -1$$

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