

برای برای $\frac{1}{\sqrt{2}}$ در از هم $\frac{1}{\sqrt{2}}$ کتیب شماره ۲۳

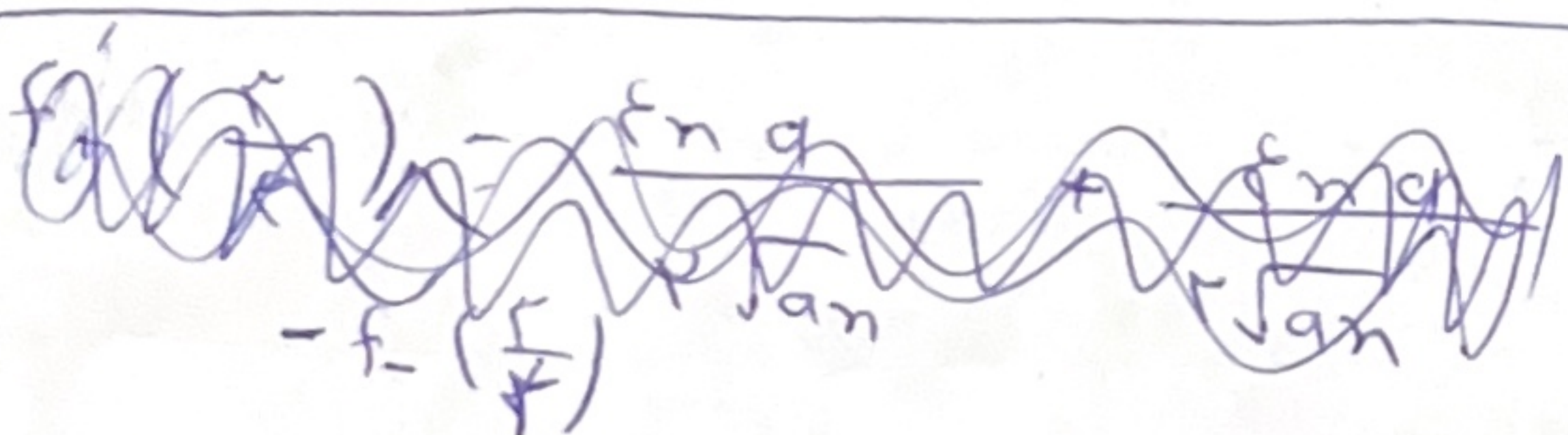
$$g'(n) = (2 + \tan n (1 + \tan^2 n) - \sqrt{2} \sin n) f'(\tan^2 n + \sqrt{2} \sin n)$$

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

$$f(n) = \frac{(2 + \cos n)(2 \sin^2 n + 4 - 2 \cos n)}{(2 - \cos n)(2 + \cos n)} = \frac{2 \sin^2 n + 4 - 2 \cos n}{2 - \cos n}$$

$$f'_n - 2g'(n) = \frac{2 \sin^2 n - 2 \cos n}{2 - \cos n} = \frac{\cos n (\cos n - 2)}{2 - \cos n} = -\cos n$$

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



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

$$f'_+(\frac{1}{2}) - f'_-(\frac{1}{2}) = 1\sqrt{\frac{1}{2}a} = 1\sqrt{a} \Rightarrow 1\sqrt{a} = \sqrt{2} \Rightarrow a = 2$$

$$f(x) = 2 - xa \Rightarrow f'(x) = -a \Rightarrow 2 - \frac{1}{2}a = -1 \Rightarrow a = 6$$

$$\frac{a+2}{(n+1)^2} = \frac{1}{n} \Rightarrow \frac{a+2}{n+1} = \frac{1}{n} \Rightarrow a+2 = \frac{n+1}{n} = 1 + \frac{1}{n}$$

$$\Rightarrow 14n - 1 = 2n^2 + 14n + 1 \Rightarrow 2n^2 + 14n + 1 = 0$$

$$\Delta = 0 \Rightarrow (14 - 2a)^2 = 1 \Rightarrow 14 - 2a = \pm 1 \Rightarrow a = \frac{13}{2} \text{ or } \frac{15}{2}$$

$$a = 4 \checkmark$$

$$\lim_{x \rightarrow 0} x^r + a = f'(x) = 0 \Rightarrow f'(x) = 1x + a = 0 \Rightarrow a = -1x$$

$$f(x) = 1 - x^2 - b = 0 \Rightarrow b = 1 \Rightarrow b - a = 2$$

$$\left. \begin{aligned} \sin^n(x) &\sim x^n \\ 1 - \cos x &\sim \frac{x^2}{2} \end{aligned} \right\} \Rightarrow \lim_{x \rightarrow 0} \frac{f(x)}{(1 - \cos x)^m} = \frac{x^{n+1}}{x^{2m}} = x^{n+1-2m} = x^{\frac{1}{2}}$$

$$\Rightarrow (n+1-2m=0) \Rightarrow m = \frac{n+1}{2} \Rightarrow x^{\frac{1}{2}} = \sqrt{x}$$

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

$$\Rightarrow f^{-1}'(y) = 2 \left(\frac{y+1}{y-1} \right) \times \frac{1}{(y-1)^2} = \frac{2}{y-1}$$

$$\frac{f(0) - f(-1)}{0 - (-1)} = \frac{19 - 1}{1} = 18 \Rightarrow a = 18$$

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

$$f'(1) = 2 \times 2 \times 2 + \frac{1}{1} = 9$$

$$\frac{f\left(\frac{\pi}{2}\right) - f\left(\frac{\pi}{4}\right)}{\frac{\pi}{2} - \frac{\pi}{4}} = \frac{1}{\frac{\pi}{4}}$$

کتاب برابری