

$$\lim_{x \rightarrow 1} \frac{f(x) - v(x) + 1^4}{(x^4 - 1)x + 1^4} = \frac{x^4 - vx + 1^4}{x^4 - 1x + 1^4} = \frac{(x^2 - 1)(x + 1)}{(x - 1)(x + 1)} \begin{cases} \xrightarrow{1^+} \frac{(1^2 - 1)}{(1 - 1)} = \frac{0}{0} \\ \xrightarrow{1^-} \frac{(1^2 - 1)}{(1 - 1)} = \frac{0}{0} \end{cases}$$

حد دارد

$$\lim_{x \rightarrow 0} \frac{|x^2 - 1| - |x^2 + 1|}{x} \stackrel{\frac{0}{0}}{\rightarrow} \frac{(1^n - 1) - (1^{n+1})}{n} = \frac{1^n + 1 - 1^{n+1} - 1}{n} = \frac{-4n}{n} = -4$$

محدود

$$\lim_{x \rightarrow 4} \frac{x - 4}{\sqrt{x} - 2} = \frac{(\sqrt{x} - 2)(\sqrt{x} + 2)}{(\sqrt{x} - 2)} = \sqrt{x} + 2 = (\sqrt{4} + 2) = 4$$

محدود

$$\lim_{x \rightarrow 4} \frac{x - \sqrt{4x}}{4x - 4} = x \frac{x + \sqrt{4x}}{x + \sqrt{4x}} = \frac{x^2 - 4x}{(x + 2)(x + 2)(x + \sqrt{4x})} = \frac{x(x - 4)}{(x + 2)(x + 2)(x + \sqrt{4x})} \Rightarrow$$

$$= \frac{4}{4 \cdot 4} = \frac{1}{4}$$

$$\lim_{x \rightarrow 1} \frac{1 - \sqrt{x}}{x - \sqrt{x}} \times \frac{1 + \sqrt{x}}{1 + \sqrt{x}} \times \frac{x + \sqrt{x}}{x + \sqrt{x}} \Rightarrow \frac{1 - x}{x - x + x} \times \frac{x + \sqrt{x}}{1 + \sqrt{x}} = \frac{1 - x}{x} \times \frac{x + \sqrt{x}}{1 + \sqrt{x}} = -\frac{1}{2}$$

محدود

$$\lim_{x \rightarrow f} \frac{\sqrt{x} + f - f}{\sqrt{a+14} - f} = \frac{0^+}{0^-} \rightarrow \frac{\sqrt{x} + f - f}{\sqrt{a+14} - f} \times \frac{\cos^2 x}{\cos^2 x} \times \frac{\text{مقدار موجبة}}{\text{مقدار موجبة}} =$$

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$$\frac{(x^n - f - 14) \left(\frac{1}{x^n} \right)}{(a+14 - f) \left(\frac{1}{a+14} \right)} = \frac{f \sqrt{x^n} (x^n - f)}{a(x^n - f) \times 1} = \frac{f \sqrt{x^n}}{a + 14} = \frac{11}{f_0}$$

$$\lim_{x \rightarrow 1} \frac{\sqrt{x} + \sqrt{x} - 1}{\sqrt{x} - 1} = \frac{0^+}{0^+}$$

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$$\lim_{x \rightarrow 1} \frac{\sqrt{x} + \sqrt{x} - 1}{\sqrt{x} - 1} \times \frac{\sqrt{x} + \sqrt{x} + 1}{\sqrt{x} + \sqrt{x} + 1} \times \frac{\sqrt{x^2} + \sqrt{x} + 1}{\sqrt{x^2} + \sqrt{x} + 1} = \lim_{x \rightarrow 1} \frac{f(\sqrt{x} - 1)(\sqrt{x} + \frac{1}{\sqrt{x}})}{f(\sqrt{x} - 1)(\sqrt{x} + 1)} = \frac{f}{1}$$

$$\lim_{x \rightarrow R} \frac{1 + \cos^2 x}{\sin^2 x} = \frac{(1 + \cos^2 x)(1 + \cos^2 x - \cos^2 x)}{1 - \cos^2 x} = \frac{1 + \cos^2 x - \cos^2 x}{1 - \cos^2 x} = \frac{1}{\sin^2 x}$$

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$$\frac{\sin^2 x}{1 - \cos^2 x} \Rightarrow \frac{1 + 1 + 1}{1 - (-1)} = \frac{3}{2}$$

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$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{1 - \tan x}{\sin x - \cos x} = \frac{\cos x - \sin x}{\cos x} = \frac{-(\sin x - \cos x)}{\cos x} = -\frac{1}{\cos x}$$

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$$\frac{\pi}{2} \times \frac{1}{\pi} = f a^0, u \quad \frac{-1}{\cos f a^0} = \frac{-1}{\frac{\sqrt{2}}{2}} = -\frac{2}{\sqrt{2}} = -\sqrt{2}$$

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$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{\tan^2 x - 1}{1 - \tan^2 x} = \frac{(\tan^2 x - 1)(\tan^2 x + 1)}{-(\tan^2 x + 1)} = -(\tan^2 x + 1)$$

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$$\frac{1 - \tan^2 x}{1 + \tan^2 x} \quad \frac{\pi/2 \times \pi/2}{1 \times 1} \Rightarrow -(\tan(\frac{\pi/2})^2 + 1) = -2$$

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