

برینجا بقیه

$$\lim_{x \rightarrow 1} \frac{x^2 - \sqrt{x} + 1}{x^2 - 1} = \frac{1 - 1 + 1}{1 - 1} = \frac{1}{0} \rightarrow \infty$$

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

(1)

$$\lim_{x \rightarrow 0} \frac{|x-1| - |x+1|}{x} = \frac{1 - 1 - (1+1)}{0} = \frac{-2}{0} = \infty$$

اینجا باید با مخرج ضرب کنیم

(5)

$$\lim_{x \rightarrow 4} \frac{x - \sqrt{x}}{\sqrt{x} - 2} = \frac{0}{0} \rightarrow \lim_{x \rightarrow 4} \frac{x - \sqrt{x}}{\sqrt{x} - 2} \cdot \frac{\sqrt{x} + 2}{\sqrt{x} + 2} = \lim_{x \rightarrow 4} \frac{x - \sqrt{x}}{x - 4} = \lim_{x \rightarrow 4} \frac{x - \sqrt{x}}{(x-2)(x+2)}$$

(2)

$$\lim_{x \rightarrow 4} \frac{x - \sqrt{x}}{x^2 - x - 4} = \frac{0}{16 - 4 - 4} = \frac{0}{8} = 0$$

(3)

$$\lim_{x \rightarrow 1} \frac{x - \sqrt{x}}{x^2 - x - 4} = \frac{0}{1 - 1 - 4} = \frac{0}{-4} = 0$$

(4)

$$\lim_{x \rightarrow 1} \frac{x - \sqrt{x}}{x^2 - x - 4} = \frac{0}{-4} = 0$$

(5)

$$\lim_{x \rightarrow 1} \frac{x - \sqrt{x}}{x^2 - x - 4} = \frac{0}{-4} = 0$$

(6)

$$\lim_{x \rightarrow 1} \frac{\sqrt{x+2} - 2}{\sqrt{x+2} - 1} = \frac{0}{0} \rightarrow \lim_{x \rightarrow 1} \frac{\sqrt{x+2} - 2}{\sqrt{x+2} - 1} \cdot \frac{\sqrt{x+2} + 1}{\sqrt{x+2} + 1} = \lim_{x \rightarrow 1} \frac{x - 2}{x + 1} = \frac{-1}{2}$$

(7)

$$\lim_{x \rightarrow 2} \frac{\sqrt{x+2} - 2}{\sqrt{x+2} - 1} = \frac{0}{0} \rightarrow \lim_{x \rightarrow 2} \frac{\sqrt{x+2} - 2}{\sqrt{x+2} - 1} \cdot \frac{\sqrt{x+2} + 1}{\sqrt{x+2} + 1} = \lim_{x \rightarrow 2} \frac{x - 2}{x + 1} = \frac{0}{3} = 0$$

(8)

مربع

$$\lim_{x \rightarrow 1} \frac{\sqrt{x+1} + \sqrt{x} - 2}{\sqrt{x} - 1} = \frac{0}{0} \rightarrow \times \frac{\text{مربع مزدوج} \times \text{مربع مزدوج}}{\text{مربع مزدوج}}$$

$$\Rightarrow \times \frac{\sqrt{x+1} + \sqrt{x}}{\sqrt{x+1} + \sqrt{x}} \times \frac{\sqrt{x+1} + \sqrt{x} + 2}{\sqrt{x+1} + \sqrt{x} + 2} = \frac{(\sqrt{x}-1)(\sqrt{x+1}+2)}{x-1} \times \frac{\sqrt{x+1}+2}{\sqrt{x+1}+2} = \frac{\sqrt{x+1}+2}{\sqrt{x+1}} \times \frac{2}{2}$$

$$= \frac{\sqrt{x+1}+2}{\sqrt{x+1}} \times \frac{2}{2} = \frac{2}{1} = 2$$

$$\lim_{x \rightarrow \pi} \frac{1 + \cos^2 x}{\sin^2 x} = \frac{0}{0} \rightarrow \frac{(1 + \cos x)(1 + \cos^2 x - \cos x)}{\sin^2 x} = \frac{(1 + \cos x)(1 + \cos^2 x - \cos x)}{(1 + \cos x)(1 - \cos x)}$$

$$\lim_{x \rightarrow \pi} \frac{1 + \cos^2 x - \cos x}{1 - \cos x} = \frac{1+1+1}{1-(-1)} = \frac{3}{2}$$



$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{1 - \tan x}{\sin x - \cos x} = \frac{0}{0} \rightarrow \lim_{x \rightarrow \frac{\pi}{2}} \frac{1 - \frac{\sin x}{\cos x}}{\sin x - \cos x} = \frac{\cos x - \sin x}{\cos x (\sin x - \cos x)} = \frac{-1}{\cos \frac{\pi}{2}} = \frac{-1}{0}$$

$$= \frac{-1}{\frac{\sqrt{x}-\sqrt{x}}{x}} = \frac{-x}{\sqrt{x}} \times \frac{\sqrt{x}}{\sqrt{x}} = -\sqrt{x}$$

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{\tan x - 1}{\cos^2 x} = \frac{1-1}{\cos^2 \frac{\pi}{2}} = \frac{0}{0} = \frac{\sin^2 x - 1}{\cos^2 x - \sin^2 x} = \frac{\sin^2 x - \cos^2 x}{\cos^2 x - \sin^2 x} = \frac{-1}{\cos^2 \frac{\pi}{2}} = \frac{-1}{0}$$

