"بنام خدا"

ستایش خدایارسا

یازدهم دهنده ۸

$$\lim_{x\to 1}\frac{4x^2-7x+3}{5x^2-8x+3}=\frac{0}{0}\xrightarrow{Hop}\frac{8x-7}{10x-8}=\frac{1}{2}$$

$$\begin{array}{r|l} 4x^2-7x+3 & x-1 \\ -4x^2+4x & 4x-3 \\ \hline -3x+3 & \\ +3x-3 & \\ \hline 0 & \end{array}$$

$$\begin{array}{r|l} 5x^2-8x+3 & x-1 \\ -5x^2+5x & 5x-3 \\ \hline -3x+3 & \\ +3x-3 & \\ \hline 0 & \end{array}$$

روش ۲

$$\frac{(4x-3)(x-1)}{(5x-3)(x-1)}=\frac{1}{2}$$

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$$\lim_{x\to 0}\frac{|3x-1|-|3x+1|}{x}\overset{0^+}{\underset{0^-}{}}=\frac{-3x+1-3x-1}{x}=\frac{-6x}{x}=-6$$

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$$\lim_{x\to 4}\frac{x-4}{\sqrt{x}-2}=\frac{0}{0}\longrightarrow\frac{(\sqrt{x}-2)(\sqrt{x}+2)}{\sqrt{x}-2}=4\xrightarrow{Hopital}\frac{1}{\frac{1}{4\sqrt{x}}}=4$$

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$$\lim_{x\to 2}\frac{x-\sqrt{3x}}{3x^2-x-6}=\frac{0}{0}\longrightarrow\frac{\sqrt{x}(\sqrt{x}-\sqrt{3})}{(x-2)(3x+3)}=\frac{\sqrt{2}}{(\sqrt{2}+\sqrt{3})(4+3)}=\frac{\sqrt{4}}{2\sqrt{4}(7)}=\frac{1}{14}$$

$$(\sqrt{2}-\sqrt{3})(\sqrt{2}+\sqrt{3})$$

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$$\lim_{x\to 1}\frac{1-\sqrt{x}}{\sqrt[3]{2}-\sqrt{5-x}}=\frac{0}{0}\longrightarrow\frac{-1/2\times 4}{2(4-5+x)}=-2$$

$$-2(1-x)$$

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$$\lim_{x\to 4}\frac{\sqrt{3x+4}-4}{\sqrt[3]{5x+7}-3}=\frac{0}{0}\longrightarrow\frac{3(x-4)(3x-12)}{(3x+4-16)\times 27}=\frac{3\times 27}{8\times 5}=\frac{81}{40}$$

$$\frac{8(5x+7-27)}{5(x-4)}$$

$$3+1$$

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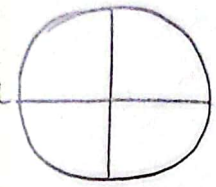
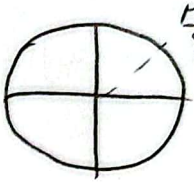
$$\lim_{x\to 1}\frac{\sqrt{3x+\sqrt{x}}-2}{\sqrt[3]{x}-1}=\frac{0}{0}\longrightarrow\lim\frac{3+\frac{1}{2\sqrt{x}}}{\frac{2\sqrt{3x+\sqrt{x}}}{1}}\overset{x=1}{=}\frac{3,5}{\frac{4}{1}}=\frac{21}{8}$$

$$\frac{1}{\sqrt[3]{x^2}}$$

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



$$\lim_{x\to\frac{\pi}{4}}\frac{1-\tan x}{\sin x-\cos x}=\frac{0}{0}\checkmark\longrightarrow\frac{1-\frac{s}{c}}{s-c}=-\frac{1}{\cos x}=-\frac{2}{\sqrt{2}}$$ (9)



$$\lim_{x\to\frac{\pi}{4}}\frac{\tan^2 x-1}{\cos 2x}=\frac{-(1-\tan^2 x)}{1+\tan^2 x}=-1-\tan^2 x=-(1+\tan^2 x)$$

$$=\frac{-1}{\cos^2 x}=\frac{-1}{\left(\frac{-\sqrt{2}}{2}\right)^2}=-\frac{4}{2}$$ (10)

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