پاسخنامه تشریحی تکلیف شماره ..... «۳۵» ..... کلاس یازدهم دختر B ..... نیایش امانی .....

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$$\lim_{x\to 1}\frac{4x^2-7x+3}{5x^2-8x+3} \overset{H\text{op}}{=} \lim_{x\to 1}\frac{8x-7}{10x-8}=\frac{1}{2}$$

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

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$$\lim_{x\to 4}\frac{x-4}{\sqrt{x}-2} \overset{H\text{op}}{\Rightarrow} \lim_{x\to 4}\frac{1}{\frac{1}{2\sqrt{x}}}=\lim_{x\to 4}2\sqrt{x}=4$$

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$$\lim_{x\to 2}\frac{x-\sqrt{3x}}{3x^2-x-6} \overset{H\text{op}}{\Rightarrow} \lim_{x\to 2}\frac{1-\frac{3}{2\sqrt{3x}}}{6x-1}=\frac{\frac{1}{2}}{7}=\frac{1}{14}$$

$$\lim_{x\to 2}\frac{x-\sqrt{3x}}{3x^2-x-6} \Rightarrow \frac{x(x-3)}{(x-2)(3x+4)(\sqrt{3x}+x)}=\frac{2}{28}=\frac{1}{14}$$

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$$\lim_{x\to 1}\frac{1-\sqrt{x}}{2-\sqrt{5-x}} \Rightarrow \lim_{x\to 1}\frac{1-x}{4-(5-x)}\times\frac{\sqrt{5-x}+2}{\sqrt{x}+1}=-2$$

$$\lim_{x\to 1}\frac{-\frac{1}{2\sqrt{x}}}{-\frac{-1}{2\sqrt{5-x}}}=\frac{-\frac{1}{2}}{\frac{1}{4}}=-2$$

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$\lim_{x\to 4} \frac{\sqrt{3x+4}-4}{\sqrt[3]{2x+1}-3} \Rightarrow \lim \frac{3x+4-16}{2x+1-27} \times \frac{27}{8} = \frac{81}{40}$

$3x-12$

$2x-6$

$2(x-3)$

$\lim_{x\to 4} \frac{\frac{3}{\sqrt{3x+4}}}{\frac{2}{\sqrt[3]{(2x+1)^2}}} = \frac{\frac{3}{8}}{\frac{2}{27}} = \frac{81}{40}$ ٤

$\lim_{x\to 1} \frac{\sqrt{3x+\sqrt{x}}-2}{\sqrt[3]{x}-1} \Rightarrow \lim \frac{3x+\sqrt{x}-4}{x-1} \times \frac{3}{4}$

$(3x-3)+(\sqrt{x}-1)$

$3(x-1)$

$\frac{3x-3}{x-1} + \frac{\sqrt{x}-1}{x-1} \times \frac{3}{4} = 3 + \frac{1}{\sqrt{x}+1} \times \frac{3}{4} = \frac{7}{2} \times \frac{3}{4} = \frac{21}{8}$

$(\sqrt{x}-1)(\sqrt{x}+1)$ ٧

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

$\hookrightarrow (1-\cos x)(1+\cos x)$ ٨

$\lim_{x\to \frac{\pi}{4}} \frac{1-\tan x}{\sin x-\cos x} \Rightarrow \frac{1-\frac{\sin x}{\cos x}}{\sin x-\cos x} = \frac{\frac{\cos x-\sin x}{\cos x}}{\sin x-\cos x} = -\frac{1}{\cos x} = \frac{-2}{\sqrt{2}} = -\sqrt{2}$

$\overset{\text{hop}}{=} \frac{-(1+\tan^2 x)}{\cos x+\sin x} = \frac{-2}{\sqrt{2}} = -\sqrt{2}$ ٩

$\lim_{x\to \frac{3\pi}{4}} \frac{\tan^2 x-1}{\cos 2x} \Rightarrow \frac{\frac{\sin^2 x}{\cos^2 x}-1}{\cos^2 x-\sin^2 x} = \frac{\frac{\sin^2 x-\cos^2 x}{\cos^2 x}}{\cos^2 x-\sin^2 x} = -\frac{1}{\cos^2 x} = \frac{-1}{\frac{2}{4}} = -2$ ١٠