نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

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$$\lim_{x\to} \frac{4x^2-7x+3}{5x^2-1x+3} \overset{\frac{0}{0}}{=} \xrightarrow{\text{رفع ابهام}} \frac{(x-1)(4x-3)}{(x-1)(5x-3)} = \frac{1}{4}$$

۲

$$\lim_{x\to 0} \frac{|3^{x-1}|-|3^{x+1}|}{x} \overset{\frac{0}{0}}{=} \xrightarrow{\text{رفع ابهام}} \frac{-3^{x+1}-3^{x-1}}{x} = \frac{-4x}{x} = -4$$

۳

$$\lim_{x\to 4} \frac{x-4}{\sqrt{x}-2} \overset{\frac{0}{0}}{=} \xrightarrow{\text{رفع ابهام}} \frac{x-4}{\sqrt{x}-2} \times \frac{\sqrt{x}+2}{\sqrt{x}+2} = \frac{4(x-4)}{x-4} = 4$$

۴

$$\lim_{x\to 2} \frac{x-\sqrt{4x}}{4x^2-x-4} \overset{\frac{0}{0}}{=} \xrightarrow{\text{رفع ابهام}} \frac{x-\sqrt{4x}}{(x-2)(4x+3)} \times \frac{x+\sqrt{4x}}{x+\sqrt{4x}} = \frac{x^2-4x}{4(x-2)(4x+3)(x+\sqrt{4x})}$$

$$= \frac{x(x-4)}{4(x-2)(4x+3)(x+\sqrt{4x})} = \frac{1}{14}$$

۵

$$\lim_{x\to 5} \frac{1-\sqrt{x}}{2-\sqrt{5-x}} \overset{\frac{0}{0}}{=} \xrightarrow{\text{رفع ابهام}} \frac{1-\sqrt{x}}{2-\sqrt{5-x}} \times \frac{1+\sqrt{x}}{1+\sqrt{x}} \times \frac{2+\sqrt{5-x}}{2+\sqrt{5-x}} = \frac{4(1-x)}{2(x-1)} = -2$$

$$\lim_{x\to 4}\frac{\sqrt{3x+4}-4}{\sqrt[3]{5x+7}-3}=\frac{0}{0}\xrightarrow{\text{رفع ابهام}}\frac{\sqrt{3x+4}-4}{\sqrt[3]{5x+7}-3}\times\frac{\text{مزدوج}}{\text{مزدوج}}\times\frac{\sqrt[3]{(5x+7)^2}+9+3\sqrt[3]{5x+7}}{\sqrt[3]{(5x+7)^2}+9+3\sqrt[3]{5x+7}}$$ ٦

$$=\frac{27(3x+4-16)}{8(5x+7-27)}=\frac{3(x-4)27}{5(x-4)8}=\frac{81}{40}$$

٢

$$\lim\frac{\sqrt{3x+\sqrt{x}}-2}{\sqrt[3]{x}-1}=\frac{0}{0}\xrightarrow{\text{رفع ابهام}}\frac{\text{مزدوج}}{\text{مزدوج}}\times\frac{\text{متمم}}{\text{متمم}}=\frac{(3x+\sqrt{x}-4)3}{(x-1)4}$$ ٧

٢

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

$$\lim_{x\to\pi}\frac{1+\cos^3 x}{\sin^2 x}=\frac{0}{0}\xrightarrow{\text{رفع ابهام}}\frac{(1+\cos^2 x-\cos x)(1+\cos x)}{(1-\cos x)(1+\cos x)}$$ ٨

$\sin^2 x \to 1-\cos^2 x$

٢

$$=\frac{3}{2}$$

$$\lim_{x\to\frac{\pi}{4}}\frac{1-\tan x}{\sin x-\cos x}=\frac{0}{0}\xrightarrow{\text{رفع ابهام}}\frac{\frac{\cos x-\sin x}{\cos x}}{\frac{\sin x-\cos x}{1}}=\frac{-1}{\cos x}$$ ٩

$$=\frac{-1}{\frac{\sqrt{2}}{2}}=\frac{-2}{\sqrt{2}}=-\sqrt{2}$$

٢

$$\lim_{x\to\frac{3\pi}{4}}\frac{\tan^2 x-1}{\cos 2x}=\frac{0}{0}\xrightarrow{\text{رفع ابهام}}\frac{\frac{\sin^2 x-\cos^2 x}{\cos^2 x}}{\frac{\cos^2 x-\sin^2 x}{1}}=\frac{-1}{\cos^2 x}=\frac{-1}{\frac{1}{2}}$$ ١٠

٢

$$=-2$$