نام و نام خانوادگی ....[illegible].... پاسخنامه تشریحی تکلیف شماره ..۳.. کلاس ....یازدهم تجربی B....

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$$\lim_{x\to 1} \frac{4x^2-7x+3}{5x^2-8x+3} = \frac{x^2-7x+12}{x^2-8x+15} = \frac{(4x-3)(x-1)}{(5x-3)(x-1)}$$

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

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

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

حد دارد

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

حد دارد

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$$\lim_{x\to 2} \frac{x-\sqrt{2x}}{2x^2-x-6} = \times\frac{x+\sqrt{2x}}{x+\sqrt{2x}} = \frac{x^2-2x}{(2x+3)(x-2)(x+\sqrt{x})} = \frac{x(x-2)}{(x-2)(2x+3)(\sqrt{2x}+x)}$$

$$= \frac{2}{28} = \frac{1}{14}$$

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

حد دارد

$\lim_{x\to 4} \dfrac{\sqrt{3x+4}-4}{\sqrt[3]{5x+7}-3} = \dfrac{0}{0}$, $\dfrac{\sqrt{3x+4}-4}{\sqrt[3]{5x+7}-3} \times \dfrac{\text{م ص}}{\text{م ص}} \times \dfrac{\text{فعل مخرج}}{\text{فعل مخرج}} =$ $\dfrac{(3x+4-16)(\text{فعل مخرج})}{(5x+7-27)(\text{مزدوج صورت})} = \dfrac{27\times 3(x-4)}{5(x-4)\times 8} = \dfrac{27\times 3}{5\times 8} = \dfrac{81}{40}$	۶
$\lim_{x\to 1} \dfrac{\sqrt{3x+\sqrt{x}}-2}{\sqrt[3]{x}-1} = \dfrac{0}{0}$ $\lim_{x\to 1} \dfrac{\sqrt{3x+\sqrt{x}}-2}{\sqrt[3]{x}-1} \times \dfrac{\sqrt{3x+\sqrt{x}}+2}{\sqrt{3x+\sqrt{x}}+2} \times \dfrac{\sqrt[3]{x^2}+\sqrt[3]{x}+1}{\sqrt[3]{x^2}+\sqrt[3]{x}+1} = \lim_{x\to 1} \dfrac{3\left[3(\sqrt{x}-1)(\sqrt{x}+\frac{4}{3})\right]}{4(\sqrt{x}-1)(\sqrt{x}+1)} = \dfrac{21}{8}$	۷
$\lim_{x\to \pi} \dfrac{1+\cos^3 x}{\sin^2 x} = \dfrac{(1+\cos x)(1+\cos^2 x-\cos x)}{1-\cos^2 x} = \dfrac{1+\cos^2 x-\cos x}{1-\cos x}$ $1-\cos^2 x = (1-\cos x)(1+\cos x)$ جایگذاری $\Rightarrow \dfrac{1+1+1}{1-(-1)} = \dfrac{3}{2}$	۸
$\lim_{x\to \frac{\pi}{4}} \dfrac{1-\tan x}{\sin x-\cos x} = \dfrac{\frac{\cos x-\sin x}{\cos x}}{\sin x-\cos x} = \dfrac{\frac{-(\sin x-\cos x)}{\cos x}}{\sin x-\cos x} = -\dfrac{1}{\cos x}$ $\dfrac{\pi}{4}\times\dfrac{180}{\pi} = 45^\circ$, $\dfrac{-1}{\cos 45^\circ} = \dfrac{-1}{\frac{\sqrt{2}}{2}} = -\dfrac{2}{\sqrt{2}} = -\sqrt{2}$	۹
$\lim_{x\to \frac{3\pi}{4}} \dfrac{\tan^2 x-1}{\cos 2x} = \dfrac{\tan^4 x-1}{1-\tan^2 x} = \dfrac{(\tan^2 x-1)(\tan^2 x+1)}{-(\tan^2 x-1)} = -(\tan^2 x+1)$ $\cos 2x = \dfrac{1-\tan^2 x}{1+\tan^2 x}$ $\dfrac{3\pi}{4}\times\dfrac{180}{\pi} = 135 \Rightarrow -(\tan(135)^2+1) = -2$, $\tan 135 = -1$, $(-1)^2 = 1$	۱۰