۱۱ دفتر B ۳۰

فاطمه فردوس ۲۰

Subject: Date:

(۱)

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

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(۲)

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

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(۳)

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

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(۴)

$$\lim_{x\to 2}\frac{x-\sqrt{2x}}{2x^2-x-6}\times\frac{x+\sqrt{2x}}{x+\sqrt{2x}}=\frac{x^2-2x}{(2x^2-x-6)\,4}$$

$$=\frac{x(x-2)}{(x-2)(2x+3)\,4}=\frac{2}{28}$$

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(۵)

$$\lim_{x\to 1}\frac{1-\sqrt{x}}{2-\sqrt{5-x}}\times\frac{\text{مزدوج}}{\text{مزدوج}}\times\frac{\text{مم}}{\text{مم}}=\frac{(1-x)\,4}{(4-5+x)\,2}$$

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

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Subject : _____ Date: _____

$$\lim_{x\to 4} \frac{\sqrt{3x+4}-4}{\sqrt[3]{5x+7}-3} \times \frac{\sqrt{3x+4}+4}{\sqrt{3x+4}+4} \times \frac{\sqrt[3]{(5x+7)^2}+3\sqrt[3]{5x+7}+9}{\sqrt[3]{(5x+7)^2}+3\sqrt[3]{5x+7}+9} \quad (6)$$

$$= \frac{3x+4-16}{5x+7-27} \times \frac{24}{8} \cdot \frac{3x-12}{5x-30} \cdot \frac{3^2(x-4)}{5(x-4)}$$

$$= \frac{3}{5} \times \frac{24}{8} = \frac{9}{10}$$

$$\lim_{x\to 1} \frac{\sqrt{3x+\sqrt{x}}-2}{\sqrt[3]{x}-1} \times \frac{\sqrt{3x+\sqrt{x}}+2}{\sqrt{3x+\sqrt{x}}+2} \times \frac{\sqrt[3]{x^2}+\sqrt[3]{x}+1}{\sqrt[3]{x^2}+\sqrt[3]{x}+1} \quad (7)$$

$$= \frac{3x+\sqrt{x}-4}{x-1} \times \frac{3}{4} \xrightarrow{\text{hop}} \frac{3+\frac{1}{2\sqrt{x}}}{1} = \frac{7}{2} \times \frac{3}{4}$$

$$= \frac{21}{8}$$

$$\lim_{x\to \pi} \frac{1+\cos^3 x}{\underbrace{\sin^2 x}_{1-\cos^2}} = \frac{(1+\cos)(\cos^2+1-\cos)}{(1-\cos)(1+\cos)} \quad (8)$$

$$= \frac{1+1+1}{1+1} = \frac{3}{2}$$

$$\lim_{x\to \frac{\pi}{4}} \frac{1-\tan x}{\sin x - \cos x} = \frac{1-\frac{\sin}{\cos}}{\sin-\cos} = \frac{\frac{\cos-\sin}{\cos}}{\sin-\cos} \quad (9)$$

$$= -\frac{1}{\cos\frac{\pi}{4}} = -\frac{1}{\frac{\sqrt{2}}{2}} = -\frac{2}{\sqrt{2}} = -\sqrt{2}$$

$$\lim \frac{\tan^2 - 1}{\cos 2\theta} = \frac{\frac{\sin^2}{\cos^2} - 1}{\cos^2 - \sin^2} = \frac{\frac{\sin^2 - \cos^2}{\cos^2}}{\frac{\cos^2 - \sin^2}{1}}$$

(10)

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