Date :

[illegible] ۲۰ Page : ( )

(1)

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

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

(2)

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

	$-\frac{1}{3}$		$\frac{1}{3}$	
$1-3x+3x+1$		$1-3x-3x-1$		$3x-1-3x-1$
2		$-6x$		-2

$$x\to 0^+ \quad -\frac{6x}{x} = -6$$

$$x\to 0^- \quad -\frac{6x}{x} = -6$$

$$\frac{-6x}{x} = -6$$

(3)

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

(4)

$$\lim_{x\to 2} \frac{x-\sqrt{2x}}{2x^2-x-6} \times \frac{x+\sqrt{2x}}{x+\sqrt{2x}} = \frac{x(x-2)}{(x-2)(2x+3)} \times \frac{1}{x+\sqrt{2x}}$$

$$\frac{2}{7\times 4} = \frac{1}{14}$$

(5) [illegible]

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

$$= -2$$

(6)

$$\lim_{x} \frac{\sqrt{3x+4}-4}{\sqrt[3]{5x+7}-3} \times \frac{\sqrt{3x+4}+4}{\sqrt[3]{(5x+7)^2}+9+3\sqrt[3]{5x+7}} \times \frac{27}{8}$$

$$\frac{3(\cancel{x-4})}{5(\cancel{x-4})} \times \frac{27}{8} = \frac{81}{40}$$

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۷) $$\lim_{x\to 1}\frac{\sqrt{3x+\sqrt{x}}-2}{\sqrt[3]{x}-1}\times\frac{\sqrt{3x+\sqrt{x}}+2}{\sqrt{3x+\sqrt{x}}+2}\times\frac{\sqrt[3]{x^2}+\sqrt[3]{x}+1}{\sqrt[3]{x^2}+\sqrt[3]{x}+1}=$$

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

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

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۹) $$\lim\frac{1-\tan x}{\sin x-\cos x}=\frac{\frac{\cancel{\cos x-\sin x}}{\cos x}}{\frac{-\cancel{(\cos x-\sin x)}}{1}}=-\frac{1}{\frac{\sqrt{2}}{2}}=\boxed{-\sqrt{2}}$$

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۱۰) $$\lim\frac{\tan^2 x-1}{\cos 2x}=\frac{\frac{\sin^2 x-\cos^2 x}{\cos^2 x}}{\cos^2 x-\sin^2 x}=-\frac{1}{\cos^2 x}=-\frac{1}{\left(\frac{\sqrt{2}}{2}\right)^2}=$$

-2

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تمامی این ۱۰ سوال حد دارد