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ریاضی دهم B
تکلیف ۳

$$\lim_{x\to 1} \frac{4x^3-7x+3}{5x^3-8x+3} \to \text{Hop} \to \frac{8x-7}{15x-8} \to \boxed{\frac{1}{4}}$$ ۱

$$\lim_{x\to 0} \frac{|3x-1|-|3x+1|}{x} = \frac{-3x+-(3x+1)}{x} = \frac{-6x}{x} = \boxed{-6}$$ ۲

$$\lim_{x\to 4} \frac{x-4}{\sqrt{x}-2} \to \frac{0}{0} \to \times \frac{\sqrt{x}+2}{\sqrt{x}+2} = \frac{(x-4)(\sqrt{x}+2)}{x-4} = \boxed{4}$$ ۳

$$\lim_{x\to 2} \frac{x-\sqrt{2x}}{2x^2-x-6} = \frac{0}{0} \to \times \frac{x+\sqrt{2x}}{x+\sqrt{2x}} = \frac{x^2-2x}{2x^2-x-6 \times x+\sqrt{2x}} \Longrightarrow \frac{x(x-2)}{2x^2-x-6 \times x+\sqrt{2x}}$$ ۴

$$\frac{2x^2-x-6}{x-2} = 2x-3$$

$$\frac{x}{2x-3 \times x+\sqrt{2x}} \leftarrow \frac{2}{4-3 \times \frac{2+\sqrt{4}}{4}} = \frac{2}{4} = \boxed{\frac{1}{2}}$$

$$\lim_{x\to 1} \frac{1-\sqrt{x}}{2-\sqrt{5-x}} \to \times \frac{1+\sqrt{x}}{1+\sqrt{x}} \times \frac{2+\sqrt{5-x}}{2+\sqrt{5-x}} \Rightarrow \frac{1-x \times 2+\sqrt{5-x}}{4-5+x \cdot 1+\sqrt{x}} \to \frac{(1-x)(2+\sqrt{5-x})}{(-1+x)(1+\sqrt{x})} = \frac{-4}{2} = \boxed{-2}$$ ۵

$$\lim_{x\to 4} \frac{\sqrt{3x+4}-4}{\sqrt[3]{5x+7}-3} \to \frac{0}{0} \to \times \frac{\sqrt{3x+4}+4}{\sqrt{3x+4}+4} \times \frac{//}{\sqrt[3]{(5x+7)^2}+9+3\sqrt[3]{5x+7}} = \boxed{\frac{81}{40}}$$ ۶

$$\lim_{x\to 1} \frac{\sqrt{3x+\sqrt{x}}-2}{\sqrt[3]{x}-1} \times \frac{\sqrt[3]{x^2}+\sqrt[3]{x}+1}{\sqrt[3]{x^2}+\sqrt[3]{x}+1} \times \frac{\sqrt{3x+\sqrt{x}}+2}{\sqrt{3x+\sqrt{x}}+2} \to \frac{(3x+\sqrt{x}-4)(\sqrt[3]{x^2}+\sqrt[3]{x}+1)}{(x-1)(\sqrt{3x+\sqrt{x}}+2)}$$ ۷

$$(\sqrt{x}-1)(3\sqrt{x}+4) \qquad (\sqrt{x}+1)$$

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

$$\lim_{x\to \pi} \frac{1+\cos^3 x}{\sin^2 x} \to \frac{0}{0} \to \frac{(1+\cos x)(1+\cos^2 x-\cos x)}{1-\cos^2 x \to (1-\cos x)(1+\cos x)} = \frac{1}{2}$$ ۸

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$$\lim_{x\to\frac{\pi}{4}} \frac{1-\tan x}{\sin x-\cos x} \Rightarrow \frac{0}{0} \to \frac{1-\frac{\sin x}{\cos x}}{\sin x-\cos x} \Rightarrow \frac{\frac{\cos x-\sin x}{\cos x}}{\sin x-\cos x} = \frac{1}{\cos x} \Rightarrow \frac{2}{\sqrt{2}} = \frac{2\sqrt{2}}{2} = \sqrt{2}$$

$$\lim_{x\to\frac{\pi}{4}} \frac{\tan^2 x-1}{\cos 2x} \to \frac{(\tan x-1)(\tan x+1)}{\cos^2 x-\sin^2 x} \to \frac{\frac{\sin x-\cos x}{\cos x} \times \frac{\sin x+\cos x}{\cos x}}{(\cos x-\sin x)(\cos x+\sin x)} = \frac{1}{\cos^2 x}$$

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