۱-

$$\lim_{x\to 1}\frac{4x^2-7x+3}{5x^2-8x+3}=\frac{0}{0}\xrightarrow{\text{رفع ابهام}}\frac{(x-1)(4x-3)}{(x-1)(5x-3)}=$$

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

۲-

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

$$\hookrightarrow 3x-1<0$$

۳-

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

$$=2+2=4$$

۴-

$$\lim_{x\to 2}\frac{8-\sqrt{32x}}{2x^2-8-6}=\frac{0}{0}\xrightarrow{\text{رفع ابهام}}\frac{\sqrt{8x}\,(\sqrt{8}-\sqrt{8x})}{(x-2)(2x+3)}$$

$$=\frac{\sqrt{8x}\,(\sqrt{8}-\sqrt{8x})}{(\sqrt{8}-\sqrt{8x})(\sqrt{8}+\sqrt{8x})(2x+3)}=\frac{\sqrt{8x}}{(\sqrt{8}+\sqrt{8x})(2x+3)}$$

$$=\frac{\sqrt{16}}{(\sqrt{8}+\sqrt{16})\times(2\times 2+3)}=\frac{4}{11}$$

۵-

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

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

۶-

$$\lim_{x\to 4} \frac{\sqrt{3x+4}-4}{\sqrt[3]{5x+7}-3} = \frac{0}{0} \xrightarrow{\text{رفع ابهام}}$$

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

$$= \frac{(3x-12)(\sqrt[3]{(5x+7)^2}+3\sqrt[3]{5x+7}+9)}{(5x-20)(\sqrt{3x+4}+4)} = \frac{3}{5} \times \frac{27}{8} = \frac{81}{40}$$

۷-

$$\lim_{x\to 1} \frac{\sqrt{3x+\sqrt{x}}-2}{\sqrt[3]{x}-1} = \frac{0}{0} \xrightarrow{\text{رفع ابهام}}$$

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

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

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

$$\lim_{x \to \pi} \frac{1+\cos^3 x}{\sin^2 x} = \frac{0}{0} \xrightarrow{\text{نعوض}} \left(\sin^2 x = 1-\cos^2 x\right) \quad -8$$

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

$$\lim_{x \to \frac{\pi}{4}} \frac{1-\tan x}{\sin x - \cos x} = \frac{0}{0} \xrightarrow{\text{نعوض}} \frac{\frac{\cos x}{\cos x} - \frac{\sin x}{\cos x}}{\sin x - \cos x} \quad -9$$

$$= \frac{\frac{\cos x - \sin x}{\cos x}}{\frac{\sin x - \cos x}{1}} = \frac{-1}{\cos x} = -\frac{1}{\frac{\sqrt{2}}{2}} = -\sqrt{2}$$

$$\lim_{x \to \frac{3\pi}{4}} \frac{\tan^2 x - 1}{\cos 2x} = \frac{0}{0} \xrightarrow{\text{نعوض}} \left(\tan^2 \alpha = \frac{1-\cos 2\alpha}{1+\cos 2\alpha}\right) \quad -10$$

$$\frac{1-\cos 2x - 1 - \cos 2x}{\frac{1+\cos 2x}{\cos 2x}} = \frac{\frac{-2\cos 2x}{1+\cos 2x}}{\cos 2x} =$$

$$\frac{-2}{\frac{1+\cos 2x}{0}} = -2$$