1-

$$\lim_{x\to 1}\frac{4x^2-7x+3}{5x^2-8x+3}=\frac{4-7+3}{5-8+3}=\frac{0}{0}\xrightarrow{H}\frac{8x-7}{10x-8}\xrightarrow{x=1}\boxed{\frac{1}{2}}$$

2-

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

$$0^+\to\frac{1-3x-3x-1}{x}=\frac{-6\cancel{x}}{\cancel{x}}=\boxed{-6}$$

$$0^-\to\frac{1-3x-3x-1}{x}=\frac{-6\cancel{x}}{\cancel{x}}=\boxed{-6}$$

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

3-

$$\lim_{x\to 4}\frac{x-4}{\sqrt{x}-2}\xrightarrow{4}\frac{4-4}{\sqrt{4}-2}=\frac{0}{0}\xrightarrow{H}\frac{1-0}{\frac{1}{2\sqrt{x}}-0}=2\sqrt{x}\xrightarrow{x=4}\boxed{4}$$

4-

$$\lim_{x\to 2}\frac{x-\sqrt{2x}}{2x^2-x-6}\xrightarrow{2}\frac{2-\sqrt{4}}{8-2-6}=\frac{0}{0}\xrightarrow{H}\frac{1-\frac{2}{2\sqrt{2x}}}{4x-1}\xrightarrow{2}\frac{1-\frac{1}{2}}{7}=\boxed{\frac{1}{14}}$$

5-

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

$$\xrightarrow{x=1}-1\times\frac{4}{2}\to\boxed{-2}$$

6-

$$\lim_{x\to 4}\frac{\sqrt{3x+4}-4}{\sqrt[3]{5x+7}-3}\xrightarrow{4}\frac{0}{0}\xrightarrow{H}\frac{\frac{3}{2\sqrt{3x+4}}}{\frac{5}{3\sqrt[3]{(5x+7)^2}}}=\frac{9\sqrt[3]{(5x+7)^2}}{10\sqrt{3x+4}}\xrightarrow{4}\frac{81}{40}$$

7-

$$\lim_{x\to 1}\frac{\sqrt{3x+\sqrt{x}}-2}{\sqrt[3]{x}-1}\xrightarrow{1}\frac{0}{0}\xrightarrow{H}\frac{\frac{3+\frac{1}{2\sqrt{x}}}{2\sqrt{3x+\sqrt{x}}}}{\frac{1}{3\sqrt[3]{x^2}}}\to\frac{(3\sqrt[3]{x^2})(3+\frac{1}{2\sqrt{x}})}{2\sqrt{3x+\sqrt{x}}}\xrightarrow{1}\frac{3\times\frac{7}{2}}{4}\to\boxed{\frac{21}{8}}$$

8-

$$\lim_{x\to\pi}\frac{1+\cos^3x}{\sin^2x}\to\frac{(1+\cos x)(1-\cos x+\cos^2)}{1-\cos^2}\to\frac{\cancel{(1+\cos x)}(1-\cos x+\cos^2x)}{(1-\cos x)\cancel{(1+\cos x)}}\xrightarrow{\pi}\frac{3}{2}=1.5$$

9-

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

10-

$$\lim_{x\to\frac{3\pi}{4}}\frac{\tan^2x-1}{\cos 2x}=\frac{\frac{\sin^2}{\cos^2}-1}{\cos^2x-\sin^2x}=\frac{\frac{\sin^2-\cos^2}{\cos^2}}{\cos^2-\sin^2}=\frac{-1}{\cos^2x}=\boxed{-2}$$