លំហាត់លីមីតនៃអនុគមន៍

១. $\lim\limits_{x\to 1}\dfrac{x-1}{\sqrt[3]{x+7}-2}$

$$\lim_{x\to 1}\frac{(x-1)\left(\sqrt[3]{(x+7)^2}+2\sqrt[3]{x+7}+4\right)}{\left(\sqrt[3]{(x+7)^3}\right)-2^3}$$

$$\lim_{x\to 1}\frac{(x-1)\left(\sqrt[3]{(x+7)^2}+2\sqrt[3]{x+7}+4\right)}{x-1}$$

$$=\frac{4+2(2)+4}{1}=12$$

២. $\lim\limits_{x\to+\infty}\left(\sqrt{4x^2-x}-\sqrt{4x^2-5x}\right)$

$$\lim_{x\to+\infty}\frac{\left(\sqrt{4x^2-x}-\sqrt{4x^2-5x}\right)\left(\sqrt{4x^2-x}+\sqrt{4x^2-5x}\right)}{\left(\sqrt{4x^2-x}+\sqrt{4x^2-5x}\right)}$$

$$\lim_{x\to+\infty}\frac{\left(\sqrt{4x^2-x}\right)^2-\left(\sqrt{4x^2-5x}\right)^2}{\left(\sqrt{4x^2-x}+\sqrt{4x^2-5x}\right)}$$

$$\lim_{x\to+\infty}\frac{4x}{\left(\sqrt{4x^2-x}+\sqrt{4x^2-5x}\right)}$$

$$\lim_{x\to+\infty}\frac{4x}{2x\left(\sqrt{1-\dfrac{1}{4x}}+\sqrt{1-\dfrac{5}{4x}}\right)}$$

$$=\lim_{x\to+\infty}\frac{2}{\left(\sqrt{1-\dfrac{1}{4x}}+\sqrt{1-\dfrac{5}{4x}}\right)}=1$$

៣. $\lim\limits_{x\to 2}\dfrac{\sqrt[3]{x}-\sqrt[3]{2}}{x-2}=\lim\limits_{x\to 2}\dfrac{\left(\sqrt[3]{x}\right)^3-\left(\sqrt[3]{2}\right)^3}{(x-2)\left(\sqrt[3]{x^2}+\sqrt[3]{2x}+\sqrt[3]{2^2}\right)}$

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

៤. $\lim\limits_{x\to 3}\dfrac{\sqrt[3]{x+5}-2}{x-3}$

$$\lim_{x\to 3}\frac{\sqrt[3]{(x+5)^3}-2^3}{(x-3)\left(\sqrt[3]{(x+5)^2}+2\sqrt[3]{(x+5)}+2^2\right)}$$

$$\lim_{x\to 3}\frac{(x-3)}{(x-3)\left(\sqrt[3]{(x+5)^2}+2\sqrt[3]{x+5}+4\right)}$$

$$\lim_{x\to 3}\frac{1}{\left(\sqrt[3]{(x+5)^2}+2\sqrt[3]{x+5}+4\right)}=\frac{1}{12}$$