ZT 16/17
VAR B

$$\lim_{n\to+\infty}\left(\sqrt{n^3+3n+1}-\sqrt{n^3+3n-1}\right)n^{\frac{1}{6}}\left(\sqrt[3]{n^2-1}\right)^2=$$

$$=\lim_{n\to+\infty}\left(\underbrace{\sqrt{n^3+3n+1}}_{a}-\underbrace{\sqrt{n^3+3n-1}}_{b}\right)\left[\frac{\overbrace{\sqrt{n^3+3n+1}}^{a}+\overbrace{\sqrt{n^3+3n-1}}^{b}}{\sqrt{n^3+3n+1}+\sqrt{n^3+3n-1}}\right]n^{\frac{1}{6}}\left(\sqrt[3]{n^2-1}\right)^2=$$

$$=\lim_{n\to+\infty}\frac{\cancel{n^3}+\cancel{3n}+1-(\cancel{n^3}+\cancel{3n}-1)}{\sqrt{n^3+3n+1}+\sqrt{n^3+3n-1}}\,n^{\frac{1}{6}}\left(\sqrt[3]{n^2-1}\right)^2=\lim_{n\to+\infty}\frac{2\,n^{\frac{1}{6}}\left(n^{\frac{2}{3}}\sqrt[3]{1-\frac{1}{n^2}}\right)^2}{n^{\frac{3}{2}}\left[\sqrt{1+\frac{3}{n^2}+\frac{1}{n^3}}+\sqrt{1+\frac{3}{n^2}-\frac{1}{n^3}}\right]}=$$

$$=\lim_{n\to+\infty}\frac{2\,\cancel{n^{\frac{1}{6}}}\,\cancel{n^{\frac{4}{3}}}\left(\sqrt[3]{1-\frac{1}{n^2}}\right)^2}{\cancel{n^{\frac{3}{2}}}\left[\sqrt{1+\frac{3}{n^2}+\frac{1}{n^3}}+\sqrt{1+\frac{3}{n^2}-\frac{1}{n^3}}\right]}=\frac{2\left(\sqrt[3]{1}\right)^2}{\sqrt{1}+\sqrt{1}}=\frac{2}{2}=1$$

$$\left(n^{\frac{1}{6}}\cdot n^{\frac{4}{3}}=n^{\frac{1+8}{6}}=n^{\frac{3}{2}}\right)$$