7.31

$$\lim_{x\to+\infty}\frac{\left(x-\sqrt{x^2-1}\right)^{40}+\left(x+\sqrt{x^2+1}\right)^{40}}{x^{40}}=$$

$$=\lim_{x\to+\infty}\frac{\left(x-\sqrt{x^2}\sqrt{1-\frac{1}{x^2}}\right)^{40}+\left(x+\sqrt{x^2}\sqrt{1+\frac{1}{x^2}}\right)^{40}}{x^{40}}=$$

$$=\lim_{x\to+\infty}\frac{\left(x-|x|\sqrt{1-\frac{1}{x^2}}\right)^{40}+\left(x+|x|\sqrt{1+\frac{1}{x^2}}\right)^{40}}{x^{40}}\overset{|x|=x}{=}$$

$$=\lim_{x\to+\infty}\frac{\left(x-x\sqrt{1-\frac{1}{x^2}}\right)^{40}+\left(x+x\sqrt{1+\frac{1}{x^2}}\right)^{40}}{x^{40}}=$$

$$=\lim_{x\to+\infty}\frac{x^{40}\left(1-\sqrt{1-\frac{1}{x^2}}\right)^{40}+x^{40}\left(1+\sqrt{1+\frac{1}{x^2}}\right)^{40}}{x^{40}}=$$

$$=\lim_{x\to+\infty}\frac{\cancel{x^{40}}\left[\left(1-\sqrt{1-\frac{1}{x^2}}\right)^{40}+\left(1+\sqrt{1+\frac{1}{x^2}}\right)^{40}\right]}{\cancel{x^{40}}}=\left(1-\sqrt{1-0}\right)^{40}+\left(1+\sqrt{1+0}\right)^{40}=\boxed{2^{40}}$$