$lim(n->infty)(5n^3-2)^{1/2}((4n^4+6n^3)^{1/2}-(4n^4+1))(logcos(3/((n+2)^{1/2}))$

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$$\lim_{n\to+\infty} (5n^3-2)^{1/2}\left[(4n^4+6n^3)^{1/2}-(4n^4+1)\log\cos\left(\frac{3}{(n+2)^{1/2}}\right)\right]$$

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

$$=2n^2+\frac{3}{2}n+o(1)$$

$$\cos\left(\frac{3}{(n+2)^{1/2}}\right)=1-\frac{1}{2}\left(\frac{3}{(n+2)^{1/2}}\right)^2+o\left(\frac{1}{n}\right)=$$

$$=1-\frac{9}{2(n+2)}+o\left(\frac{1}{n}\right)$$

$$\log\cos\left(\frac{3}{(n+2)^{1/2}}\right)=-\frac{9}{2(n+2)}+o\left(\frac{1}{n}\right)$$

$$(5n^3-2)^{1/2}\left[(4n^4+6n^3)^{1/2}-(4n^4+1)\log\cos\left(\frac{3}{(n+2)^{1/2}}\right)\right]=$$

$$=(5n^3-2)^{1/2}\left[2n^2+\frac{3}{2}n+o(1)+\frac{9(4n^4+1)}{2(n+2)}+o(n^3)\right]=$$

$$=\underbrace{(5n^3-2)^{1/2}}_{\to+\infty}\cdot\underbrace{n^3}_{\to+\infty}\left[\underbrace{\frac{36n+9/n^3}{2(n+2)}}_{\to 18}+\underbrace{\frac{o(n^3)}{n^3}}_{\to 0}\right]\rightsquigarrow+\infty$$