$\lim_{n\to\infty} \frac{2n^3+3n+5}{-3n^3+4n+7}$

$\lim_{n\to\infty} \frac{\cancel{n^3}(2+\frac{3}{n^2}+\frac{5}{n^3})}{\cancel{n^3}(-3+\frac{4}{n^2}+\frac{7}{n^3})}$

$\lim_{n\to\infty} \frac{2+\frac{3}{n^2}+\frac{5}{n^3}}{-3+\frac{4}{n^2}+\frac{7}{n^3}}$

$\lim_{n\to\infty} \frac{2+3\frac{1}{n}\frac{1}{n}+5\frac{1}{n}\frac{1}{n}\frac{1}{n}}{-3+4\frac{1}{n}\frac{1}{n}+7\frac{1}{n}\frac{1}{n}\frac{1}{n}}$

$\frac{1}{n} \to 0 \implies \lim_{n\to\infty} \frac{2+3\times 0+5\times 0}{-3+4\times 0+7\times 0}$

$\implies \lim_{n\to\infty} \frac{2n^3+3n+5}{-3n^3+4n+7} = \frac{-2}{3}$