

$$1 > \frac{\Gamma(x+1)\Gamma(\textcolor{blue}{x/3+2})}{(x+1)^2(\frac{\textcolor{blue}{(x+1)^4}}{3e^4})^{x/3}} > \frac{2\pi}{3\sqrt{3}e^{4/3}} \approx \textcolor{blue}{0.3}18741$$