7) <u>Successione:</u>

Ho: $\dfrac{2^{5n^2+3n}}{4^{5n^2-3n}} = \dfrac{2^{5n^2+3n}}{2^{10n^2-6n}} = \dfrac{1}{2^{5n^2-9n}} \xrightarrow[n \to \infty]{} 0$

poiché $5n^2 - 9n \xrightarrow[n \to +\infty]{} +\infty$.

e ho: $\dfrac{4^{5n+3}}{2^{10n-3}} = \dfrac{2^{10n+6}}{2^{10n-3}} = \dfrac{2^6}{2^{-3}} = 2^9 \xrightarrow[n \to \infty]{} 2^9$

Quindi, $\lim\limits_{n \to \infty} \left(\pi \cdot \dfrac{2^{5n^2+3n}}{4^{5n^2-3n}} + e \cdot \dfrac{4^{5n+3}}{2^{10n-3}} \right) = 2^9 \cdot \pi$