

ESERCIZIO 1 Sio

①

$$a_m = \left(1 + \frac{1}{(m^4 - m^3 + m^2 - m)^{1/6}} \right)^{(2m+1)^{1/3} - (m-1)^{1/3}}$$

passando a notazione esponenziale

$$a_m = \exp \left(\underbrace{\left((2m+1)^{1/3} - (m-1)^{1/3} \right) \ln \left(1 + \frac{1}{(m^4 - m^3 + m^2 - m)^{1/6}} \right)}_{b_m} \right)$$

con

$$b_m = \left(\left(2 + \frac{1}{m} \right)^{1/3} - \left(1 - \frac{1}{m} \right)^{1/3} \right) \ln \left(1 + \frac{1}{(m^4 - m^3 + m^2 - m)^{1/6}} \right)$$

$\xrightarrow{m \rightarrow +\infty} 0$

$$\cdot \frac{m^{1/3}}{m^{1/6} \left(1 - \frac{1}{m} + \frac{1}{m^2} - \frac{1}{m^3} \right)^{1/6}}$$

Quindi

$$\lim_{m \rightarrow +\infty} a_m = \underline{1}$$