21 tel 2022

Q2.b) do 2.º Teste em Recurso

$$\frac{100}{10^{2M+2}} \left( \frac{99}{10^{2M+2}} - \frac{3/2}{(MH)(M+2)} + \frac{2^{M-1}}{3^{M}} \right) = 5$$

• A sine 
$$\frac{400}{10^{2M+2}} = \frac{400}{100^{M+1}} = 99 \sum_{m=0}^{400} (\frac{1}{100})^{m+1}$$

e' geométrica de razar 1 €]-1,1 [ loço convergente.

$$\frac{100}{100} \left[ 99 \left( \frac{1}{100} \right)^{MH} \right] = \frac{10 \text{ termo}}{1 - \frac{1}{100}} = \frac{99/100}{1 - \frac{1}{100}} = 1 = S_1$$

• A serie 
$$\frac{3/2}{(m+1)(m+2)} = \frac{3}{2} \sum_{m=0}^{+\infty} (\frac{A}{m+1} + \frac{B}{m+2}) + and$$

alguns A, B & R a calcular pelo me'todo dos coet. indeterminados:

$$\frac{1}{(m+1)(m+2)} = \frac{A}{m+1} + \frac{B}{m+2} = \frac{A(m+2) + B(m+1)}{(m+1)(m+2)}$$

$$\frac{(A+B) m + (2A+B)}{(m+1) (m+2)} = \frac{1}{(m+1)(m+2)} \Rightarrow \begin{cases} A+B=0 & |A=1| \\ 2A+B=1 & |B=-1| \end{cases}$$

Enotati  

$$\frac{3}{2}$$
  $\frac{3}{2}$   $\frac{3}{$ 

$$\frac{1}{2} \frac{3/2}{(MH)(MH2)} = \frac{3}{2} \left( 10 - \lim_{M \to 100} \frac{1}{M+1} \right) = \frac{3}{2} \left( \frac{1}{1} \right) = \frac{3}{2} = \frac{3}{2} = \frac{3}{2}$$

• A serie 
$$\sum_{n=0}^{+\infty} \frac{2^{m-1}}{3^m} = \sum_{n=0}^{+\infty} \frac{1}{2} \left(\frac{2}{3}\right)^n e'$$
 geométrica de razar  $\frac{2}{3} \in ]-1,1[$  leço convergente e tem soma ignal a  $\frac{1/2}{1-\frac{2}{3}} = \frac{1/2}{\frac{1}{3}} = \frac{3}{2} = 5_3$ 

Concluo: 
$$5 = 5_1 - 5_2 + 5_3 = 1 - \frac{3}{2} + \frac{3}{2} = 1$$
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