$$\Rightarrow I_1 = \frac{-2(-1)^n}{n\pi} + \frac{3}{n\pi}\left[-\frac{2}{n\pi} \cdot I_2\right]$$

$$I_2 = \int_{-1}^{1} x \operatorname{sen}(n\pi x)\, dx = \frac{-2(-1)^n}{n\pi} \quad \left(\begin{array}{l}\text{visto en}\\ \text{clases}\end{array}\right)$$

$$\Rightarrow I_1 = \frac{-2(-1)^n}{n\pi} + \frac{12}{(n\pi)^3}(-1)^n$$

$$\Rightarrow K_n = \frac{K}{6}\left[I_1 - I_2\right] = \frac{K}{6} \cdot \frac{12}{(n\pi)^3}(-1)^n$$

$$\Rightarrow K_n = \frac{2K}{(n\pi)^3}(-1)^n$$

[esta página y la anterior suman 2ptos]

$$\Rightarrow y(x,t) = \frac{2K}{\pi^3} \sum_{n=1}^{\infty} \frac{(-1)^n}{n^3} \operatorname{sen}(n\pi x)\cos(n\pi t)$$

1pto

finalmente $u(x,t) = y(x,t) - \phi(x)$

$$I_2 = \int_{-1}^{1} \underbrace{x}_{u} \underbrace{\operatorname{sen}(n\pi x)\,dx}_{dv} = -x\frac{\cos(n\pi x)}{n\pi}\Big|_{-1}^{1} + \int_{-1}^{1} \frac{\cos(n\pi x)}{n\pi}\,dx \to 0$$

$$\Rightarrow I_2 = -\frac{\cos(n\pi)}{n\pi} - \frac{\cos(n\pi)}{n\pi} \qquad 0{,}3$$

$$= \frac{-2}{n\pi}(-1)^n$$

h.