







H3 8
a) $x(t) = \frac{16}{t-1}$, $y(t) = 15 + 2t - t^2$, $C[2, 4]$
$p(x(t),y(t)) = \max_{2 \le t \le 4} 25+2t-t^2-\frac{16}{t-1} = \max_{2 \le t \le 4} 25+2t-t^3+t^2-16 $
$= \max_{2 \le t \le 4} \frac{-t^3 + 3t^2 + 13t - 31}{t - 1} = \max_{2 \le t \le 4} \mathcal{U}(t) \qquad \mathcal{U}(2) = -1$
$U'(t) = (15+2t-t^2-\frac{16}{t-1}) = 2-2t+\frac{16}{(t-1)^2}$
$2t^{2} + 2t + $
$(t-1)^{2}$ $6t^{2}-6t+18-2t^{3}=0$ $(t-1)^{2}$
$\frac{1}{2}(2+3) - \frac{1}{2}(2+3) = 0$
$(t^{2}+3)(3-t) = 0$ $t_{1}=3 5 t_{2}=\sqrt{-3} R$
-tj=3
p(x(t), y(t)) = U(t1) = 4.

a) l^{∞} , $\chi^{(N)} = \begin{pmatrix} n+1 & n+2 & n+3 & n+4 \\ n & n+1 & n+2 & n+2 \end{pmatrix}$, $\chi^{1} = \begin{pmatrix} 2 & 1 & 5 & 3 & 3 & 3 \\ 1 & 1 & 5 & 3 & 3 & 3 & 3 \end{pmatrix}$, $\chi^{2} = \begin{pmatrix} 1 & 5 & 3 & 3 & 3 \\ 1 & 1 & 1 & 1 & 3 \\ 1 & 1 & 1 & 1 & 3 \end{pmatrix}$ X = (1, 1, 1, 1, ...) $= \sup_{k=1,\infty} \frac{1}{n+k-1} = \frac{1}{n} \xrightarrow{n\to\infty} 0$ b) $\ell^{\frac{1}{2}}, \chi^{(n)} = \left(\frac{1}{n+1}, \frac{1}{n+1}, \frac{1}{n+1}, \frac{1}{n+1}, \frac{1}{n+1}, \frac{1}{n+1}, \frac{1}{n+1}\right)$ $\chi^{2} = \begin{pmatrix} \frac{1}{2}, \frac{1}{4}, \frac{1}{2}, \cdots \end{pmatrix}$ $\chi^{2} = \begin{pmatrix} \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \cdots \end{pmatrix}$ X = (0,0,0,0,...) $0 = \sum_{k=1}^{\infty} |x^{k} - x| = |1 - 0| + \sum_{k=1}^{\infty} \frac{1}{(n+1)^{k}} = \frac{1}{2} + \sum_{k=1}^{\infty} \frac{1}{(n+1)^{$