Ta co:

$$\begin{aligned}\Sigma_{k=1}^{n}|x_k+y_k|^p &= \Sigma_{k=1}^{n}|x_k+y_k||x_k+y_k|^{p-1}\\ &\le \Sigma_{k=1}^{n}(|x_k|+|y_k|)|x_k+y_k|^{p-1}\\ &= \Sigma_{k=1}^{n}|x_k||x_k+y_k|^{p-1}+\Sigma_{k=1}^{n}|y_k||x_k+y_k|^{p-1}\\ &\le (\Sigma_{k=1}^{n}|x_k|^p)^{\frac{1}{p}}(\Sigma_{k=1}^{n}|x_k+y_k|^{(p-1)*q})^{\frac{1}{q}}+(\Sigma_{k=1}^{n}|y_k|^p)^{\frac{1}{p}}(\Sigma_{k=1}^{n}|x_k+y_k|^{(p-1)*q})^{\frac{1}{q}}\\ &= ((\Sigma_{k=1}^{n}|x_k|^p)^{\frac{1}{p}}+(\Sigma_{k=1}^{n}|y_k|^p)^{\frac{1}{p}}))*(\Sigma_{k=1}^{n}|x_k+y_k|^{(p-1)*q})^{\frac{1}{q}}\\ &= ((\Sigma_{k=1}^{n}|x_k|^p)^{\frac{1}{p}}+(\Sigma_{k=1}^{n}|y_k|^p)^{\frac{1}{p}}))*(\Sigma_{k=1}^{n}|x_k+y_k|^p)^{\frac{1}{q}}\end{aligned} \tag{1}$$

Suy ra:

$$\begin{aligned}(\Sigma_{k=1}^{n}|x_k+y_k|^p)^{1-1/q} &= (\Sigma_{k=1}^{n}|x_k+y_k|^p)^{1/p}\\ &\le (\Sigma_{k=1}^{n}|x_k|^p)^{\frac{1}{p}}+(\Sigma_{k=1}^{n}|y_k|^p)^{\frac{1}{p}})(dpcm)\end{aligned}$$

Trong bat dang thuc so (1):

- Dong thu 1 sang dong thu 2 la do $|x+y|\le|x|+|y|$.
- Dong thu 3 sang dong thu 4 la do ap dung bat dang thuc Hoelder.
- Dong thu 5 sang dong thu 6 la do $\frac{1}{p}+\frac{1}{q}=1$ nen $(p-1)*q=p$.