Step-1

Given that $x=(1,1,1,1,1)$ and $x=(0.1,0.7,0.3,0.4,0.5)$

We have to compute $\|x\|$, $\|x\|_1$ and $\|x\|_\infty$ for the given vectors.

Step-2

The ℓ^1 norm is defined by $\|x\|_1=|x_1|+|x_2|+...+|x_n|$ and the ℓ^∞ norm is defined by $\|x\|_\infty=\max\{|x_i|:1\le i\le n, x=(x_1,x_2,...,x_n)\}$

Also, we know that the hilbert norm is $\|x\|=\sqrt{x_1^2+x_2^2+...+x_n^2}$

Step-3

Now we have $x=(1,1,1,1,1)$

Then

$$\begin{aligned}\|x\|_1&=1+1+1+1+1\\&=5\end{aligned}$$

And

$$\begin{aligned}\|x\|_\infty&=\max\{1,1,1,1,1\}\\&=1\end{aligned}$$

And

$$\begin{aligned}\|x\|&=\sqrt{1^2+1^2+...+1^2}\\&=\sqrt{5}\end{aligned}$$

Hence for $x=(1,1,1,1,1)$, we get $\boxed{\|x\|=\sqrt{5}\ ,\ \|x\|_1=5 \text{ and } \|x\|_\infty=1}$

Step-4

Now we have $x=(0.1,0.7,0.3,0.4,0.5)$

Then

$$\begin{aligned}\|x\|_1&=0.1+0.7+0.3+0.4+0.5\\&=2\end{aligned}$$

And

$$\begin{aligned}\|x\|_\infty &= \max\{0.1, 0.7, 0.3, 0.4, 0.5\}\\ &= 0.7\end{aligned}$$

Step-5

And

$$\begin{aligned}\|x\| &= \sqrt{0.1^2 + 0.7^2 + .0.3^2 + 0.4^2 + 0.5^2}\\ &= \sqrt{0.01 + 0.49 + 0.09 + 0.16 + 0.25}\\ &= \sqrt{1}\\ &= 1\end{aligned}$$

Hence for $x = (0.1, 0.7, 0.3, 0.4, 0.5)$, we get $\boxed{\|x\| = 1\ ,\ \|x\|_1 = 2 \text{ and } \|x\|_\infty = 0.7}$.