含绝对值的三侧用函数的周期性. fix)=|six|, x ∈ R. 求证: fix)的最小正周期是不. proof: T≠O. 对∀x∈R,有: $f(x+\pi) = \left| \sin(x+\pi) \right| = \left| -\sin x \right| = \left| \sin x \right| = f(x).$:. 不是 fix)的一个周期: 对∀T∈CO, π). 假设T是f(x)的周期,则有:对∀x∈R,f(x+T)=f(x)ShT=0: f(0+T) = f(0), \mathbb{P} : $|\sin T| = |\sin 0| = 0$ $\cdot: T \in (0,\pi)$:: SinT > 0 矛盾. ·· 广不是 f(x) 的周期. · f(x)的最小正周期是 T. □ 2. $f(x) = \left| \sin x + \frac{1}{2} \right|$ xeR. 求证: f(x)的最小正周期是 27. $proof: 2\pi > 0$, $xty \times \in \mathbb{R}$, $f: f(x+2\pi) = \left| Sn(x+2\pi) + \frac{1}{2} \right| = \left| Snx + \frac{1}{2} \right| = f(x)$ · 2大是 fix)的一个周期。 对\T∈(0,2元). 假设T是fxx的周期,则有:对\x∈R, f(x+T)=f(x) : f(0+T) = f(0) A $f(\frac{\pi}{2}+T) = f(\frac{\pi}{2})$ $|\sin(T) + \frac{1}{2}| = \frac{1}{2} |\cos(T) + \frac{1}{2}| = \frac{3}{2}$ $|\sin(T) + \frac{1}{2}| = \frac{1}{2} : \sin(T) + \frac{1}{2} = \pm \frac{1}{2} : \sin(T) = 0$ 若 Sin(T) = 0 , 则: : $Te(0, 2\pi)$: $T = \pi$: $\left| cos(T) + \frac{1}{2} \right| = \left| cos(\pi) + \frac{1}{2} \right| = \frac{1}{2} + \frac{3}{2}$ # sin(T) = -1, 则: : $T \in (0, 2\pi)$: $T = \frac{3}{2}\pi$: $\left| cos(T) + \frac{1}{2} \right| = \left| cos(\frac{3}{2}\pi) + \frac{1}{2} \right| = \frac{1}{2} + \frac{3}{2}$:. 矛盾: : T視f(x)的周期 : f(x)的最小正周期是27. [

3. f(x) = |sux|+|cosx|, xeR. 求证:f(x)的最小正周期是至 $\operatorname{Proof} \colon \frac{\pi}{2} > 0. \quad \text{xf} \forall x \in \mathbb{R}, \, \dot{\eta} \colon \left. f(x + \frac{\pi}{2}) = \left| \sin(x + \frac{\pi}{2}) \right| + \left| \cos(x + \frac{\pi}{2}) \right| = \left| \cos(x + \frac{\pi}{2}$ $= |\cos x| + |\sin x| = f(x). : 元是 f(x)的 - 个周期.$ 对∀T∈(0, 至),假设T是f(x)的周期,则有:对 $∀x \in \mathbb{R}$,f(x+T) = f(x): f(0+T) = f(0). $\mathbb{R}P : |SinT| + |cosT| = 1$: T∈(0, \(\frac{7}{2}\)) : SinT >0 \(\mathbb{L}\) cosT>0 $| \cdot \cdot \cdot | = | \sin T | + | \cos T | = \sin T + \cos T = \sqrt{2} \sin \left(T + \frac{\pi}{4} \right)$ $: T \in (0, \frac{\pi}{2}) : T + \frac{\pi}{4} \in (\frac{\pi}{4}, \frac{3\pi}{4}) : Sin(T + \frac{\pi}{4}) \in (\frac{\pi}{2}, 1]$:. T不是 f(x)的周期 :. f(x)的最小正周期是至 □