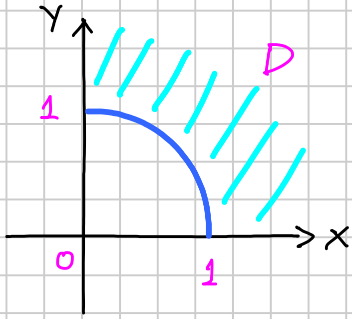
BY GIMUSI 16/07/15

$$\iint_D |\operatorname{arctg}(x-y)|\, dx\, dy =$$



$$= \int_0^{\pi/2} \int_1^{+\infty} |\operatorname{arctg}[\rho(\cos\theta - \sin\theta)]|\, \rho\, d\rho\, d\theta \geq$$

$$\geq \int_0^{\pi/6} \int_1^{+\infty} |\operatorname{arctg}[\rho(\cos\theta - \sin\theta)]|\, \rho\, d\rho\, d\theta \geq$$

$\cos\theta - \sin\theta \geq$
$\geq \cos\frac{\pi}{6} - \sin\frac{\pi}{6}$
$0 \leq \theta \leq \frac{\pi}{6}$

$$\geq \int_0^{\pi/6} \int_1^{+\infty} |\operatorname{arctg}[\rho(\cos\tfrac{\pi}{6} - \sin\tfrac{\pi}{6})]|\, \rho\, d\rho\, d\theta =$$

$$= \frac{\pi}{6} \int_1^{+\infty} |\operatorname{arctg}[\rho(\tfrac{\sqrt{3}}{2} - \tfrac{1}{2})]|\, \rho\, d\rho \geq$$

$\rho \geq 1$

$$\geq \frac{\pi}{6} \int_1^{+\infty} \operatorname{arctg}\left(\frac{\sqrt{3}}{2} - \frac{1}{2}\right) \rho\, d\rho = \frac{\pi}{6} \operatorname{arctg}\left(\frac{\sqrt{3}}{2} - \frac{1}{2}\right) \int_1^{+\infty} \rho\, d\rho = +\infty$$

$\rightsquigarrow$ L'INTEGRALE DIVERGE