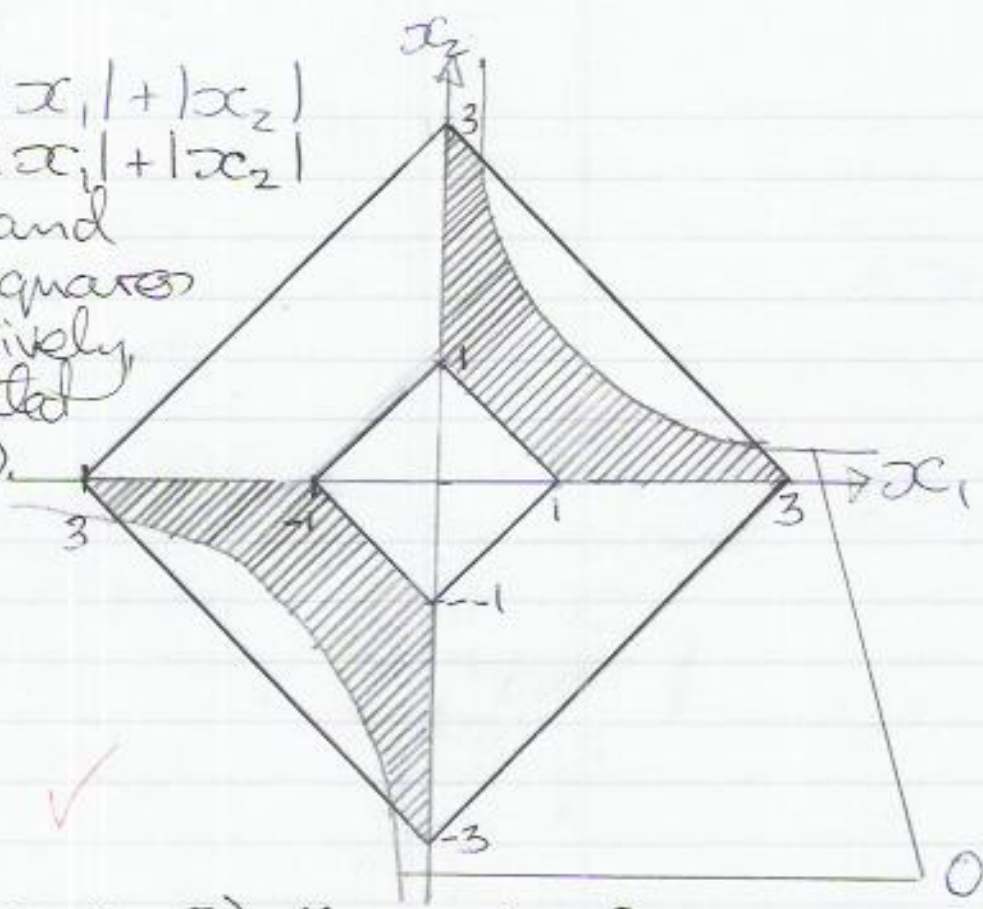


$-1 = |x_1| + |x_2|$
 $-3 = |x_1| + |x_2|$
 (inner and outer squares respectively, each rotated by $\pi/2$).



6/ ✓

$g^{-1}([0,1] \times [1,3]) = \{(x_1, x_2) \in \mathbb{R}^2 : 0 \leq x_1, x_2 \leq 1, 1 \leq |x_1| + |x_2| \leq 3\}$
 is the area lined in pencil.