- Compute the det[df] for the spherical coordinates map f(r, θ, φ) = (r cos φ cos θ, r cos φ sin θ, r sin φ) and verify that it's a diffeomorphism of U = {r > 0, 0 < θ < 2π, -π/2 < φ < π/2 onto ℝ³ \{x ≥ 0, y = 0}
 Recall that a function f: U → ℝ on an open set U ⊂ ℝⁿ is called
- (2) Recall that a function f: U → R on an open set U ⊂ Rⁿ is called locally bounded if for any point p ∈ U there exists ε > 0 such that B(p, ε) ⊂ U and f is bounded on B(p, ε).

Prove that if f is locally bounded on U and $C \subset U$ is compact then f is bounded on C.