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Katarina Jegdic* (jegdic@uhd.edu). *A Riemann problem for the two-dimensional isentropic gas dynamics equations.*

We consider a two-dimensional Riemann problem for the isentropic gas dynamics equations leading to strong regular reflection. We rewrite the problem using the self-similar coordinates and we obtain a mixed type system and a free boundary problem for the subsonic state and the reflected shock. Using the theory of second order elliptic equations and various fixed point arguments, we prove local existence of a solution. (Received June 30, 2011)