We propose three quadrilateral mesh refinement algorithms to improve the convergence of the finite element method approximating the singular solutions of elliptic equations, which are due to the non-smoothness of the domain. These algorithms result in graded meshes consisting of convex and shape-regular quadrilaterals. With rigorous analysis in weighted spaces, we provide the selection criteria for the grading parameter, such that the optimal convergence rate can be recovered for the associated finite element approximation. Various numerical tests verify the theory. (Received January 19, 2015)