Online homework systems are being utilized in many college mathematics classrooms. Do these systems have an effect on student outcomes? This study compares student outcomes in multiple sections of a required mathematics course. The sections differed only in the homework method: online, traditional pencil and paper, or a combination of the two. Among other results, it was found that students were more likely to attempt and to receive higher homework grades with online assignments than with traditional assignments. However, the study found no significant difference in the exam grades of students in the sections using online homework and the students in the sections using traditional homework. These and other findings are presented in this paper. (Received August 28, 2009)