Fully online courses are getting more attention and demand among students at every level, arguably more among professional graduate students like teachers pursuing master’s degrees. Conference Board of the Mathematical Sciences (CBMS) recently called for action to incorporate active learning into post-secondary mathematics classrooms. In response to this call, we will share an assignment that was carefully crafted to provide opportunities to “engage in mathematical investigation, communication, and group problem solving, while also receiving feedback on their work from both experts and peers” (CBMS, 2016). This assignment was designed to be used in a fully online graduate mathematics course offered to in-service secondary mathematics teachers. We will share our perspective in regard to the challenges and affordances as the instructors of such course and some feedback that we received from the students of this course. (Received September 20, 2016)