Problem 3) Drop a normal from B' to AB, as shown. The line $B'B''$ will then be parallel to BC, making the triangles ABC and $AB''B'$ similar. Since AB' is already known to be equal to ½AC, we conclude that AB'' is equal to ½AB. Therefore, $B'B''$ is the perpendicular bisector of AB, which means that the point B' is equidistant from A and B. Consequently, $BB' = AB' = \frac{1}{2}AC$.