Suppose triangle ABC is given with angles angles measuring a,b,c respectively. By the parallel postulate, we construct a line FG parallel to AB passing through point B. We extend segment CB to CD, and segment AB to AE. Angle $\angle DBE \cong \angle ABC$ because they are vertical angles. Similarly, $\angle FBD \cong \angle ACB$, and $\angle BAC \cong \angle EBG$ because these are corresponding angles of two parallel lines cut by the transversal FG. By the segment addition postulate, and the definition of a straight line $m\angle FBD + m\angle DBE + m\angle EBG = m\angle FBG = 180°$. Q.E.D. (quot erat demonstrandum – that which was to be demonstrated)