

**12224.** *Proposed by Cherng-tiao Perng, Norfolk State University, Norfolk, VA.* Let  $ABC$  be a triangle, with  $D$  and  $E$  on  $AB$  and  $AC$ , respectively. For a point  $F$  in the plane, let  $DF$  intersect  $BC$  at  $G$  and let  $EF$  intersect  $BC$  at  $H$ . Furthermore, let  $AF$  intersect  $BC$  at  $I$ , let  $DH$  intersect  $EG$  at  $J$ , and let  $BE$  intersect  $CD$  at  $K$ . Prove that  $I$ ,  $J$ , and  $K$  are collinear.