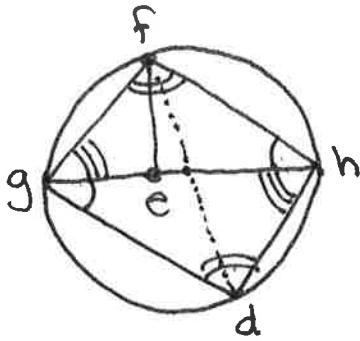


ASG V2  
 Ex 11.1  
 (Geometry)



$$\overline{ge} \cdot \overline{eh} = \overline{fe}^2$$

(i) construct  $\overline{gf}$  &  $\overline{fh}$

(ii) rotate  $\overline{gfh}$  through  $180^\circ$  degrees about center of circle  $gfh$ , forming

$\triangle gdh$ .

(iii) the following angles are equal  $\sphericalangle$ ,  $\sphericalangle$ ,  $\sphericalangle$

(iv) So  $\sphericalangle fgd$  &  $\sphericalangle fhd$ ;  $\sphericalangle gfh$  &  $\sphericalangle hgd$  are equal.

(v) Since the diagonals  $\overline{fd}$  and  $\overline{gh}$  are equal, all the angles in (iv) are  $90^\circ$  (it is a rectangle)

(vi) Now notice that  $\triangle hfe$  and  $\triangle fge$  are similar.

(vii) So  $\frac{\overline{fe}}{\overline{eh}} = \frac{\overline{ge}}{\overline{fe}}$

(viii) And  $\overline{ge} \cdot \overline{eh} = \overline{fe}^2$  Q.E.D.