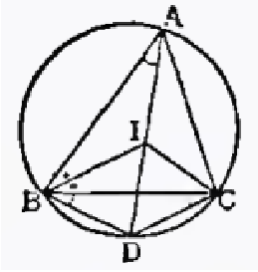

Example 179 : As shown in Figure 3, if △the center of *ABC is I and the circumcenter of* △*BCI* is *D,* then the three points A, I, and D are collinear, and the four points A, B, C, and D *are in the same circle* .

$$\left(\frac{A-I}{I-D}\right)^2=\frac{\frac{B-I}{B-D}\frac{C-D}{C-B}\frac{I-C}{I-D}\frac{A-I}{A-B}\frac{B-A}{B-I}\frac{C-B}{C-I}}{\frac{I-D}{I-B}\frac{B-C}{B-D}\frac{C-D}{C-I}\frac{A-C}{A-I}\frac{B-I}{B-C}\frac{C-I}{C-A}}.$$

$$\frac{\frac{C-D}{C-B}}{\frac{A-D}{A-B}}=\frac{\frac{B-I}{B-D}\frac{B-A}{B-I}\frac{C-D}{C-B}}{\frac{I-D}{I-B}\frac{B-I}{B-C}\frac{B-C}{B-D}}\frac{I-D}{A-D},$$