ثامناً:

أثبت أن

$$1+\cot^2(90-C) = \operatorname{cosec}^2(90-C)$$

الحل:

سوف نأخذ الجزء الأول .. Side ①

$$\frac{1+\cot^2(90-C)}{1+\dfrac{\cos^2(90-C)}{\sin^2(90-C)}}$$

$$1+\frac{\cos(90-C)\cdot\cos(90-C)}{\sin(90-C)\cdot\sin(90-C)}$$

$$1+\frac{\sin^2C}{\cos^2C}$$

بتوحيد المقامات

$$=\frac{\cos^2C}{\cos^2C}+\frac{\sin^2C}{\cos^2C}$$

$$=\frac{\cos^2C+\sin^2C}{\cos^2C}$$

$$=\frac{1}{\cos^2C} \Rightarrow \frac{1}{\sin^2(90-C)} \rightarrow \text{مقلوبها}$$

$$=\operatorname{cosec}^2(90-C)$$