<p align="center">**Tips and Tricks**</p>

1. Always Start from the More Complex Side:

To prove a trigonometric identity, we always start from either the left hand side (LHS) or the right hand side (RHS) and apply the identities step by step until we reach the other side. However, smart students always start from the more complex side. This is because it is a lot easier to eliminate terms to make a complex function simple than to find ways to introduce terms to make a simple function complex.

Example:(1) Prove the identity $\tan^4 x = \sec^2 x \ (\tan^2 x - 1) + 1$

Approach: It would be wise to start proving this from the right hand side (RHS) since it is more complex.

2. Express everything into <u>Sine and Cosine:</u>

To both sides of the equation, express all tan , cosec , sec and cot in terms of sin and cos . This is to standardize both sides of the trigonometric identity such that it is easier to compare one side to another.

Example Q2) Show that $\sec A \left(\dfrac{1}{\cot A} + \cot A \right) = \dfrac{1}{\sin A - \sin^3 A}$

Approach: We should transform the sec A and cot A into sin A and cos A.

$$LHS = \sec A \left(\frac{1}{\cot A} + \cot A \right)$$

$$= \frac{1}{\cos A} \left(\frac{\sin A}{\cos A} + \frac{\cos A}{\sin A} \right)$$

(convert everything into sin A and cos A)

$$= ...$$

3. Make a formulas and identities cheatsheet and solve questions in timed manner.