**6.3 – PROVING IDENTITIES**

Proving an identity means showing that the equality is true for all permissible values of the variable.

Testing the equality for some values of the variable is not a proof.

To prove an identity, you need to work with each side SEPARATELY! You can either work with one side and transform it into the other side, OR simplify both sides separately until you get the same expression on both sides.

Examples:

1. Prove that is an identity.
2. Prove that is an identity.

**Here are some strategies to help when you feel stuck:**

* Simplify each expression starting with the most complicated one.
* If there are quadratic expressions, think about the Pythagorean identities or try to factor. (Remember you can only simplify a common factor top and bottom, not terms…)
* Rewrite the expressions using sin and cos only, and using single angles unless all the angles are the same.
* When you feel stuck and there is nothing left to simplify, think about multiplying top and bottom by a conjugate expression.
* Keep an eye on the other side to remember where you are trying to go…

Examples: Prove the following identities

1.
2.
3.
4.

Remember to look and anticipate where you want to go in order to avoid working in circles…

**Hwk: p 314 # 1 – 18 + extra practice package**