Prove the following Identities:

1.) cos(3t) = cos3t - 3sin2t cost

2.) csc4x – cot4x = 2csc2x - 1

3.) sec4x tan2x = (tan2x + tan4x)sec2x

4.) tan (u + v) = tan u + tan v

 1 - tanutanv

5.) 1 – cos(5x)cos(3x) – sin(5x)sin(3x) = 2sin2x