1. Prove that 2
2. Prove that =
3. Find the value of
4. Find all possible values of a, b and c such that
   1. a + b + c=51
   2. abc=4000
   3. 0 <a and c
5. Circles S1 and S2 meet at L and M. Let P be a point on S2. Let PL and PM meet S1 again at Q and R respectively. The lines QM and RL meet at K. Show that, as P varies on S2, K lies on a fixed circle.
6. Consecutive positive integers m, m+1, m+2, m+3 are divisible by consecutive odd positive integers n, n+2, n+4 and n+6 respectively. Determine the smallest possible m in terms of n.
7. Find the values of zeta(2) and zeta(4) where zeta is riemann-zeta function.
8. Prove that for all positive reals a, b, c.