1. a) Prove that the equation $e^x = 2-x$ has at least one real root.

   b) Use a rough sketch to illustrate that there is only one root in this case. Then use your calculator, and the IVT, to find an interval of length 0.01 which contains the root.

2. A moving van leaves Vancouver at 7am, and arrives in Calgary at 7pm. The movers unload the van, get a couple of hours of sleep, and then drive back to Vancouver by the same route, again leaving at 7am and arriving at 7pm. Prove that there is a point on the route which the van will pass at exactly the same time on both days.

3. MEM, p.146 #76 b,c,e.

4. MEM, p.146-147 #77 b,c.

5. MEM, p.147 #78

6. MEM, p.147 #79

Bonus   MEM p.147 #82. (A bonus of up to 0.5 on your final course grade for a clear solution. Submit separately, to your instructor, any time before the last day of classes. Individual efforts only, please; we'd prefer not to see collaboration on bonus problems.)