Course 161/2S3, Tutorial 2, Michaelmas Term 2000

1. Express the following numbers in base 2 (binary), base 10 (decimal), and base 16 (hex): $(124)_{10}$, $-(f3)_{16}$, $(7.46)_{10}$, and $(4f.6d)_{16}$.

   Assuming integers are stored in 2's complement format using 4 bytes per number, and reals are stored in IEEE single precision format, determine the HEX patterns by which each of these numbers is represented in the computer.

   What value does the hex pattern `dd1d0000` have if it is interpreted as a 2's complement integer?, and as an IEEE single precision real number?

2. What value do the hex patterns `dd1d0000` and `efef0000` have if they are interpreted as 2's complement integers?, and as IEEE single precision real numbers?

3. Write two versions of a simple `C` program to sum the integers from 1 to 20. The first version should use a `while` loop and the second a `for` loop.