1. (a) (4 points) For the following four numbers given in decimal or hexadecimal notation, write the corresponding binary number using the indicated format.

   $(-11)_{10}$ using 6-bit two's complement: $(11\,0101)_2$

   $(51)_{10}$ using 6-bit unsigned: $(11\,0011)_2$

   $(-17)_{10}$ using 6-bit sign magnitude: $(11\,0001)_2$

   $(39)_{16}$ using 6-bit unsigned: $(11\,1001)_2$

   (b) (1 point) What are the problems with the sign/magnitude representation of binary numbers, why are they not used more often than two's complement representation?

   Solution:
   Zero is represented twice (+0, -0), and more importantly subtraction is more complex when you have sign/magnitude. In two's complement the same circuit can handle both positive and negative numbers exactly the same way.