Due at the start of class Wednesday, October 1, 2003.

Problem 1. "Half word floating point" is like IEEE754 binary representation for a floating-point number except it uses one bit to represent the sign, four bits to represent the exponent, and 11 bits to represent the significand (or mantissa). Show the half word floating point representation for 45_{ten}.

Problem 2. Show the half word floating point representation for 0.3_{ten}.

Problem 3. Show the operations when the two numbers 45_{ten} and 0.3_{ten} in their half word floating point representations are added.

Problem 4. Show the operations when the two numbers 45_{ten} and 0.3_{ten} in their half word floating point representations are multiplied.

Problem 5. For IEEE754 floating point representation, what is the

(a) Largest (positive) representable number? (Infinity is not a number.)

(b) Smallest positive representable number that is normalized?

(c) Smallest positive representable number that is denormalized?

(d) What is the smallest gap between two normalized numbers.

(e) What is the largest gap between two normalized numbers.