Senior Division Short Problems

## 1. Computer Number Systems

Solve for $\mathrm{X}_{2}$

$$
\mathrm{X}_{2}=\mathrm{F} 123_{16}-123_{10}-123_{8}
$$

2. Bit String Flicking

Solve for X

$$
\text { X= (RCIRC }-2 \text { 11000) XOR (LSHIFT- } 101100)
$$

## 3. Bit String Flicking

How many values of X satisfy the following equation?
$($ RCIRC $-3(01010$ OR 00101 AND X $)=11001$
4. Boolean Algebra

Simplify completely

$$
(\overline{A B} \mathrm{C})(\bar{A} \mathrm{C})
$$

## 5. Boolean Algebra

List all ordered triples (A,B,C) that make the following expression TRUE

$$
A B \oplus \overline{C+(C B+A)}
$$

