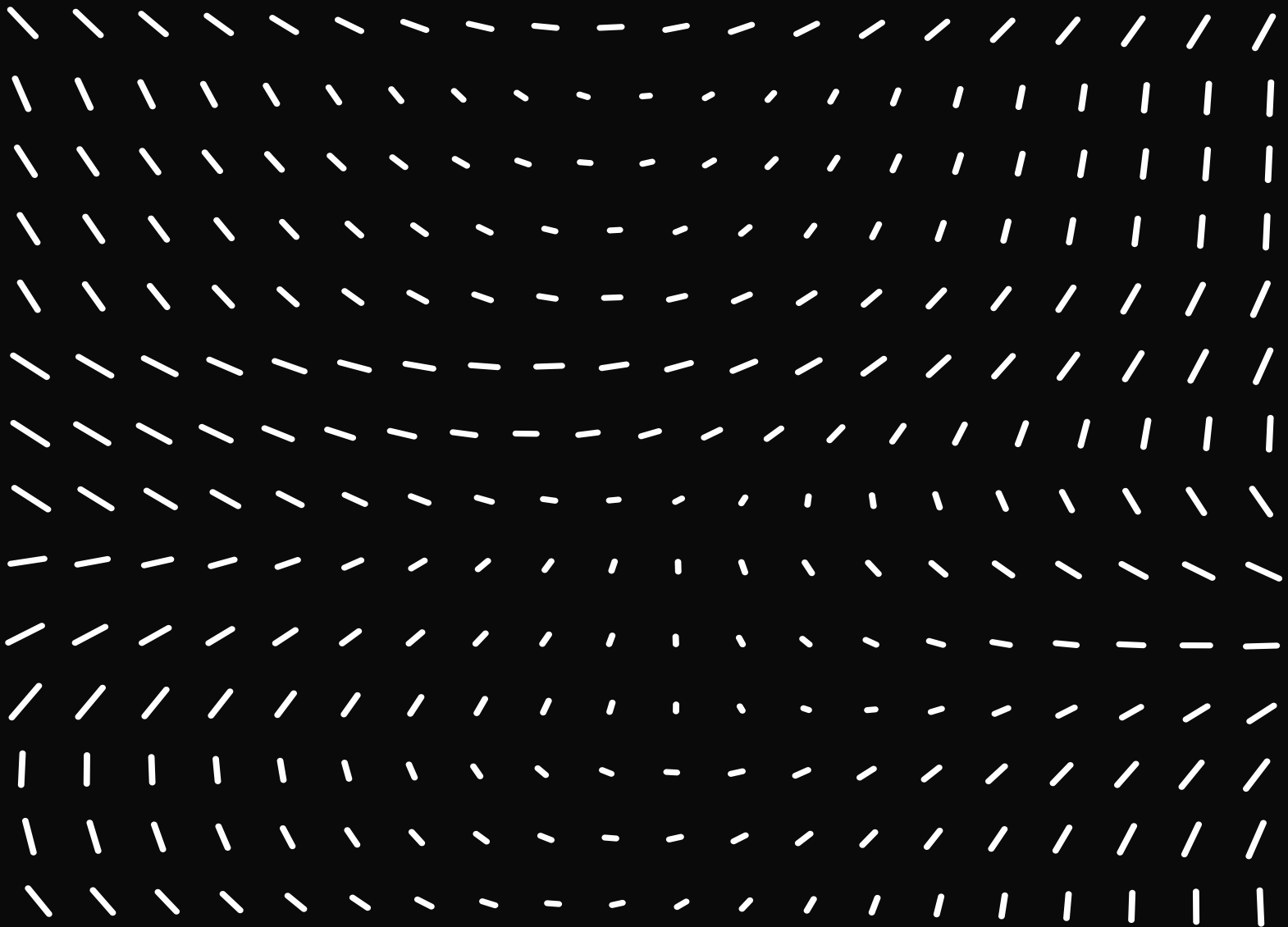


Austin Wekesa,

CS 51 Written Problems



A.  $0x7819$  AND  $0x829A$

$$\begin{array}{rcl} 0x7819 & = & 0111\ 1000\ 0001\ 1001 \\ 0x829A & = & 1000\ 0010\ 1001\ 1010 \\ \hline & & 0000\ 0000\ 0001\ 1000 \\ & = & 0x0018 \end{array} \quad \text{AND}$$

B.  $0xA281$  OR  $0xF037$

$$\begin{array}{rcl} 0xA281 & = & 1010\ 0010\ 1000\ 0001 \\ 0xF037 & = & 1111\ 0000\ 0011\ 0111 \\ \hline & & 1111\ 0010\ 1011\ 0111 \\ & = & 0xF2B7 \end{array} \quad \text{OR}$$

C. NOT ( (NOT  $0x5478$ ) AND (NOT  $0xFEE0$ ) )

$$\neg(\neg A \wedge \neg B) = A \vee B$$

$$\begin{array}{rcl} 0x5478 & = & 0101\ 0100\ 0111\ 1000 \\ 0xF037 & = & 1111\ 0000\ 0011\ 0111 \\ \hline & & 1111\ 0100\ 0111\ 1111 \\ & = & 0xF47F \end{array} \quad \text{OR}$$

D.  $0x8814$  XOR  $0x93FA$

$$\begin{array}{rcl} 0x8814 & = & 1000\ 1000\ 0001\ 0100 \\ 0x93FA & = & 1001\ 0011\ 1111\ 1010 \\ \hline & & 0001\ 1011\ 1110\ 1110 \\ & = & 0x1BEE \end{array} \quad \text{XOR}$$

E.  $0x2871$  NOR (NOT  $0xCAFE$ )

$$\begin{array}{rcl} 0xCAFE & = & 1100\ 1010\ 1111\ 1110 \\ (\text{NOT})\ CAFE & = & 0011\ 0101\ 0000\ 0001 \\ 0x2871 & = & 0010\ 1000\ 0111\ 0001 \\ \hline & & 1100\ 0010\ 1000\ 1110 \\ & = & 0xC28E \end{array} \quad \text{NOR}$$