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| **1. Boolean Algebra**  Which ordered pairs make the following Boolean expression TRUE? | **1.** |
| **2. Boolean Algebra**  Simplify the following Boolean expression: | **2.** |
| **3. Data Structures**  In the binary search tree for the string below, which nodes  have only I child?  NIBBLESWOODAWAY | **3.** |
| **4. Data Structures**  Given an initially empty queue and the following sequence of operations,  what would be the next POPPED element?  PUSH(O), PUSH(C), PUSH(E), POP(X), PUSH(A), PUSH(N), POP(X),  POP(X), PUSH(S), PUSH(T), POP(X), PUSH(A), PUSH(T), PUSH(E),  POP(X), POP(X) | **4.** |
| **5. What Does This Program Do? - Arrays**  Beginning with an initially empty array A, what is the positive  difference between the maximum and minimum non-zero values in the  array after the program is run?  for n = 1 to 4  for p = 1 to 4  a(n,p) = n + p + n\*p  next p  next n  for n = 1 to 4  for p = 1 to 4  if (a(n,p) / 2 = int(a(n,p) / 2)) || (a(n,p) / 3 = int(a(n,p) / 3)) ||  (a(n,p) / 5 = int(a(n,p) / 5)) then a(n,p) = 0  next p  next n  end | **5.** |