This homework assignment has 2 problems, for a total of 26 points.

1. (16 points) Identify all of the following statements that are true about transactions and processes of various kinds
   A. If we consider an enhanced Saga in which two consecutive subtransactions $A$ and $B$ may occur in either order, then those subtransactions may be compensated for in either order
   B. A Saga of three or more subtransactions may be defined where each of these subtransactions is vital
   C. BPEL doesn’t support the common programming constructs of sequencing, branching, and iteration
   D. In typical settings where Sagas and DOM extended transaction models can be applied, compensations are defined for at least some of the subtransactions
   E. No compensation is necessary for a read only subtransaction
   F. In cases of failure of a subtransaction within a larger transaction, we may have to choose between retrying the one that failed or undoing some of those that succeeded
   G. In the two-phase commit protocol, the second phase is needed only if at least one of the participants decides not to commit its transaction
   H. For $n \geq 2$, the $n$-phase commit protocol determines whether $(n + 1)$ business partners unanimously agree to commit their respective transactions

2. (10 points) Identify true statements from among the following about events, computations, and guards
   A. “Neither $e$ nor $\overline{e}$ may occur” may be expressed as $0$
   B. “If $e$ precedes $f$, then $f$ cannot occur” may be expressed as $e \lor \overline{f} \lor f \cdot e$
   C. When $e$ is immediate, $e \cdot f \lor \overline{f} \cdot e$ reduces to $e \cdot f \lor \overline{f} \cdot e$ (i.e., has no change)
   D. Residuating $(\overline{e} \lor \overline{f} \lor e \cdot f \lor f \cdot e)$ by $e$ yields $\top$
   E. The guard of $f$ produced from $(\overline{e} \lor \overline{f} \lor e \cdot f \lor f \cdot e)$ is $\Diamond \overline{e} \lor \neg e \land \Diamond e$