MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use the figure below to answer the following question(s).

1) Which of the drawings has an open unicursal tracing?
   A) Figure 1 and Figure 3
   B) Figure 1 only
   C) Figure 3 only
   D) Figure 2 only
   E) None of the above

Solve the Problem.

2) The following graph

   A) has a single Hamilton circuit (and its mirror-image circuit).
   B) has several Hamilton circuits, none of which contain the edge BC.
   C) has several Hamilton circuits, all of which contain the edge AD.
   D) has no Hamilton circuit.
   E) None of the above
A delivery truck must deliver packages to 6 different store locations (A, B, C, D, E, and F). The trip must start and end at C. The graph below shows the distances (in miles) between locations. We want to minimize the total distance traveled.

3) The nearest-neighbor algorithm applied to the graph yields the following solution:
   A) C, A, B, D, F, E, C.
   B) C, A, E, F, B, D, C.
   C) E, B, D, F, E, A, C.
   D) C, D, E, F, A, B, C.
   E) None of the above

4) The cheapest-link algorithm applied to the graph yields the following solution:
   A) C, A, B, D, F, E, C.
   B) C, D, E, F, A, B, C.
   C) C, A, E, F, B, D, C.
   D) C, B, D, F, E, A, C.
   E) None of the above
An undercover police officer is assigned the job of once a night walking each of the 48 blocks of a certain section of town described by the street grid shown below. The walk starts and ends at A. The officer wants to minimize the total number of blocks he has to walk each night.

5) How many vertices of odd degree are there in the graph representing this problem?
   A) 20
   B) 22
   C) 18
   D) None of the above
   E) 24

6) An optimal eulerization of the graph representing this problem can be obtained by adding
   A) 9 edges
   B) 11 edges.
   C) 10 edges
   D) 12 edges
   E) None of the above