You have isolated four different mutants unable to synthesize compound E required

for growth. You know that compounds A through D are involved in the biosynthetic

pathway that produces compound E, but you do not know the order in which they are

synthesized by a wild-type cell. You supplement the growth of each of the 4 mutants

with each compound and assay its ability to support growth. Using the data below,

construct a biochemical pathway indicating the order of the compounds and the step

where each mutation is acting. Explain how you arrived at the map.

Compound added

A B C D E

Mutation

1 − − − − +

2 − + + + +

3 − − + + +

4 − − + − +