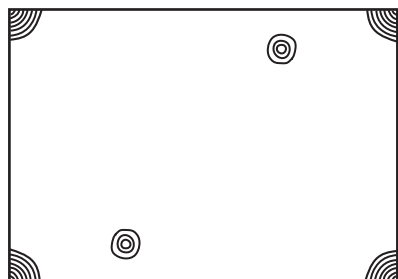


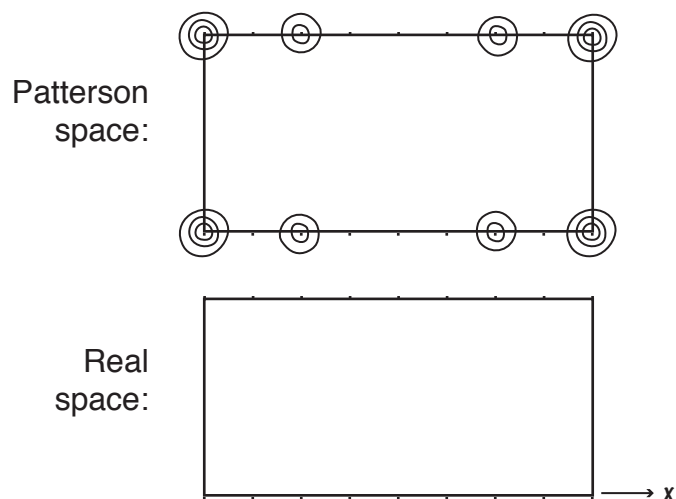
## PATTERSON MAPS

1. Since your protein has a single free SH group you try soaking the crystals in solutions of mercury compounds. Data from one of them gives you the simple Patterson map shown below. On the unit cell shown empty, draw in a possible set of heavy-atom positions that would satisfy the Patterson map.



## PATTERSON MAPS, CONT'D

2. Solve the Patterson map shown below; put one atom at the origin in real space.



If one of the atoms is at the origin, explain why for the 1,0,0 diffracted ray the second atom would give a phase of  $90^\circ$ .

If atom one and atom two are the same, draw a phase-vector diagram describing the combined scattering from the two atoms for this 1,0,0 reflection.