

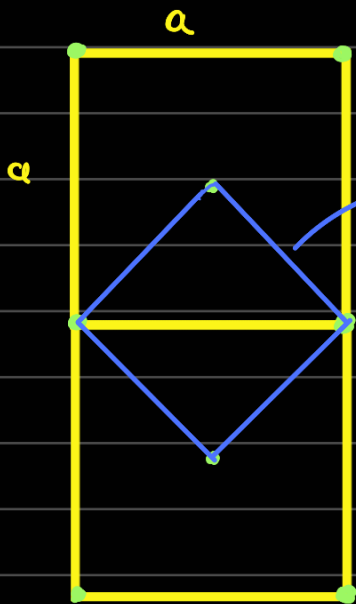
Day-4

→ only 5 Bravais lattices in 2D:

mp, op, oc, hp, tp

→ Either you do not conform to the definition of lattice points, or just reproduce what is already defined.

→ Problem:



→ Square unit cell
So nothing new reproduced

☆ what we did above can't be done for oc, as the primitive cell we would then get would be of lesser symmetry (or symmetry sacrificed)

→ Space Lattice:

$(a, b, c, \alpha, \beta, \gamma)$

• If $a \neq b \neq c$, $\alpha \neq \beta \neq \gamma$ → Triclinic lattice
(aP, $\bar{1}$)

ap \rightarrow Primitive
 \downarrow
anorthic

- ap diad \rightarrow mp (monoclinic)
- ap triad \rightarrow hr (rhombohedral)

\downarrow
 $a=b=c, \alpha=\beta=\gamma \neq 90^\circ$

- ap more diad \rightarrow orp (orthorhombic)

$a \neq b \neq c, \alpha = \beta = \gamma = 90^\circ$

- op tetrad \rightarrow tp (tetragonal) ($a=b \neq c, \alpha=\beta=\gamma=90^\circ$)

- mp hexad \rightarrow hp (hexagonal primitive)

- cp (cubic primitive) $\rightarrow a=b=c$
 $\alpha=\beta=\gamma=90^\circ$

Existence of 2-fold and 3-fold are in a lattice.

