

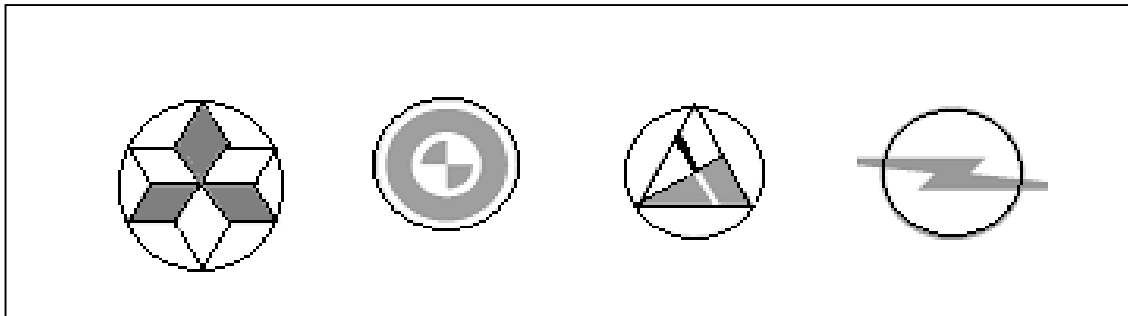


Kasdi Merbah University - Ouargla -
Faculty of Mathematics and Material Science
physics department
Second year physics
A series of exercises and problems N01-2024/2025
Crystallography



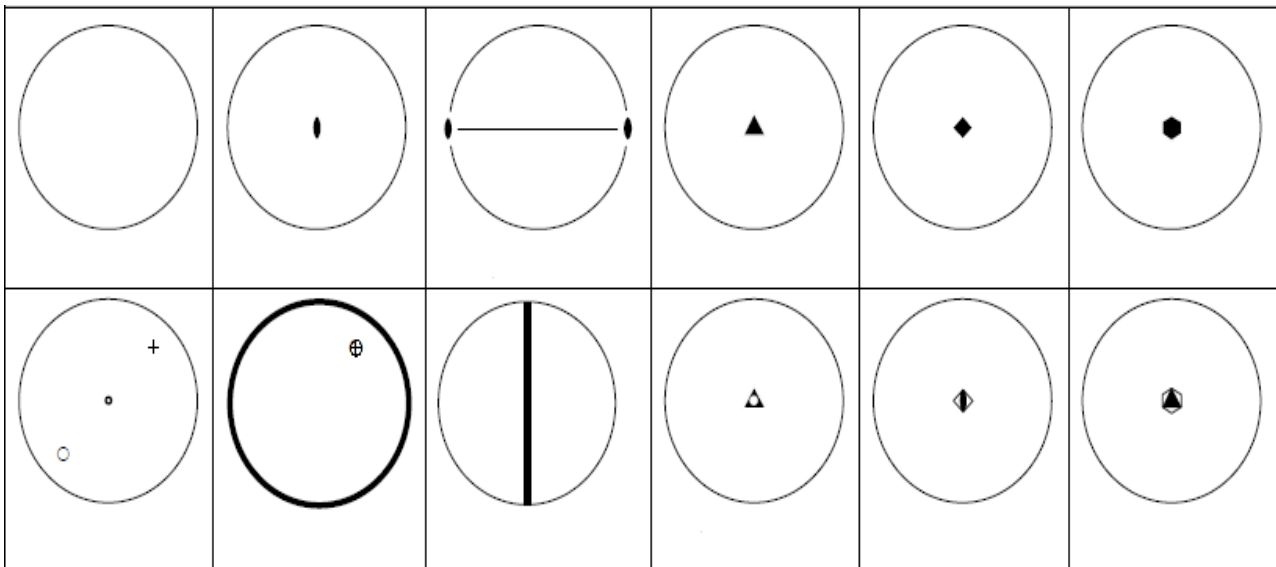
First exercise:

Specify one element of symmetry for each picture.

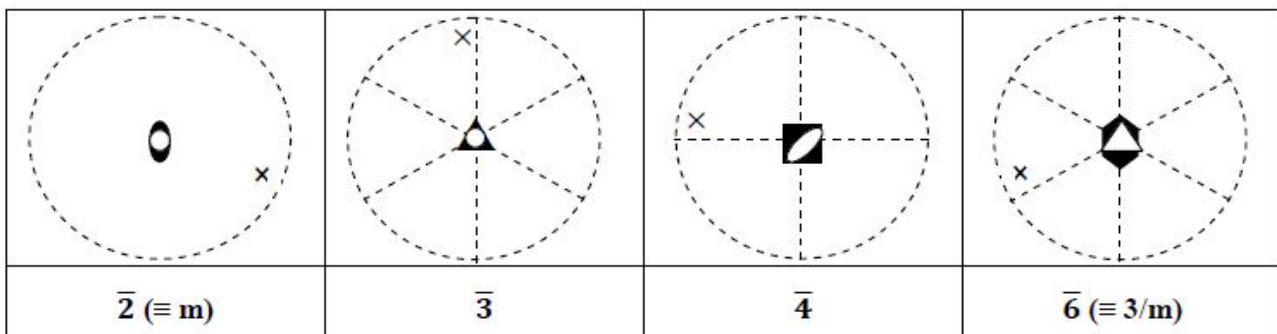


Second exercise:

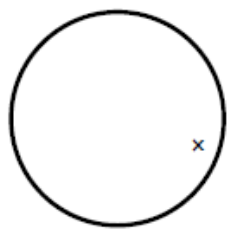
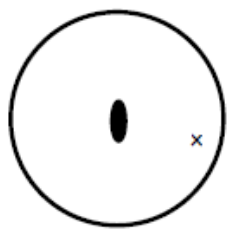
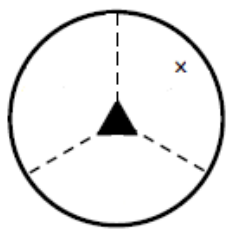
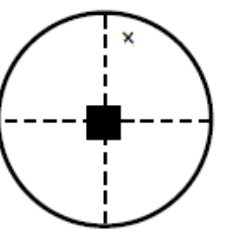
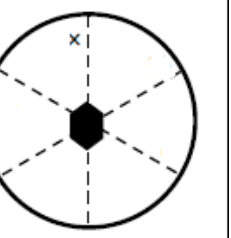
1) Complete the following stereographic projections, specify the elements of symmetry and the equivalent points corresponding to each:



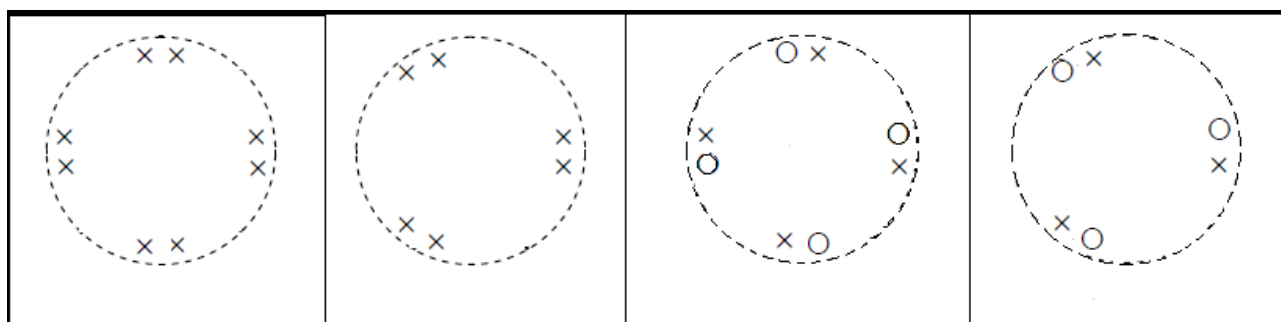
2) Draw the points resulting from the following symmetry operations:



3) Complete the following, and write the corresponding group of symmetry:

				
$1 \dots (\equiv m)$	\dots/m	\dots	\dots	\dots

4) Complete and find the point group corresponding to the following stereographic projections:



Third exercise:

Prove the following :

- a) $\bar{1} \equiv 2' \equiv c$
- b) $\bar{2} \equiv 1' \equiv m$
- c) $\bar{3} \equiv 6' \equiv 3\bar{1}$
- d) $\bar{6} \equiv 3' \equiv 3/m$

Third exercise:

Using the matrix representation, find the coordinates of all equivalent points :

- a) 2 ; m ; 3 ; 6 .
- b) $\bar{2}$; $\bar{3}$; mmm ; $\bar{6}$; $3/m$.