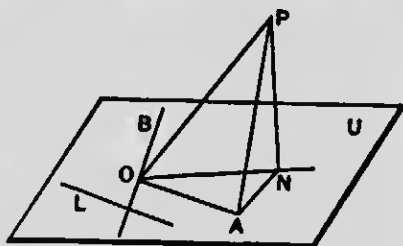


Def. 3. The angle between two non-complanar lines is the angle between two intersecting lines respectively parallel to the given lines.

12. Theorem. The angle between a line and its projection on a plane is less than the angle between the given line and any planar line not parallel to the projection.

The line PO meets the plane U in O ; ON is the projection of OP on U ; OA is a line through O , parallel to the planar line L , which is not parallel to the projection ON .



Then $\angle PON$ is $< \angle POA$.

Proof. From P draw PN perpendicular to ON . PN is normal to the plane U (Art. 11. Def. 1).

Take $OA = ON$ and join PA and AN .

Since $\angle PNA = 90^\circ$, PA is $> PN$.

And in the triangles POA and PON , PO is common,

$OA = ON$, and $PA > PN$;

$\therefore \angle POA$ is $> \angle PON$. (P. Art. 67.)

And as L is any planar line not parallel to ON , the $\angle PON$, between PO and its projection on U , is less than that between PO and any line in the plane, not parallel to ON .

Cor. 1. Since two intersecting lines make with one another two angles which are supplementary (P. Art.