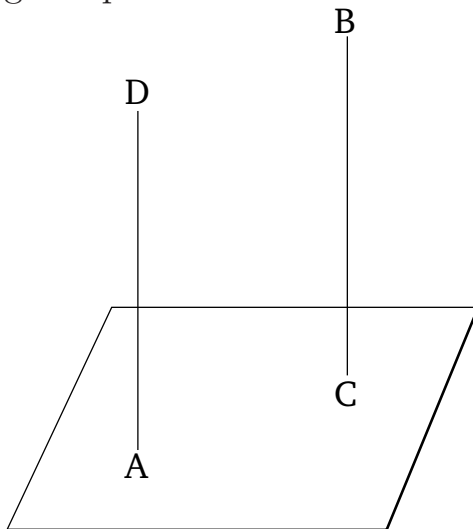


# Book 11

## Proposition 12

To set up a straight-line at right-angles to a given plane from a given point in it.



Let the given plane be the reference (plane), and  $A$  a point in it. So, it is required to set up a straight-line at right-angles to the reference plane at point  $A$ .

Let some raised point  $B$  have been assumed, and let the perpendicular (straight-line)  $BC$  have been drawn from  $B$  to the reference plane [Prop. 11.11]. And let  $AD$  have been drawn from point  $A$  parallel to  $BC$  [Prop. 1.31].

Therefore, since  $AD$  and  $CB$  are two parallel straight-lines, and one of them,  $BC$ , is at right-angles to the reference plane, the remaining (one)  $AD$  is thus also at right-angles to the reference plane [Prop. 11.8].

Thus,  $AD$  has been set up at right-angles to the given plane, from the point in it,  $A$ . (Which is) the very thing it was required to do.