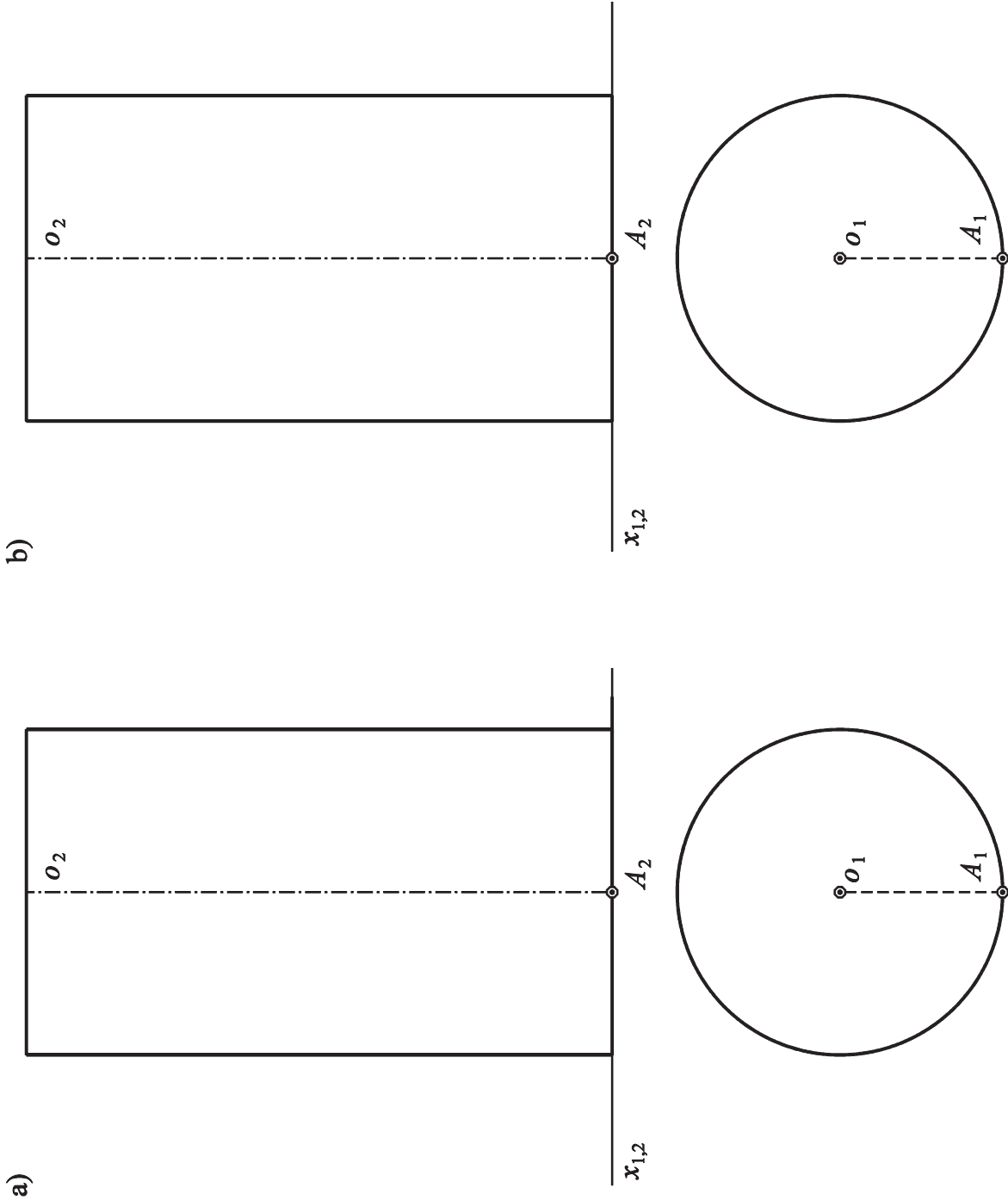
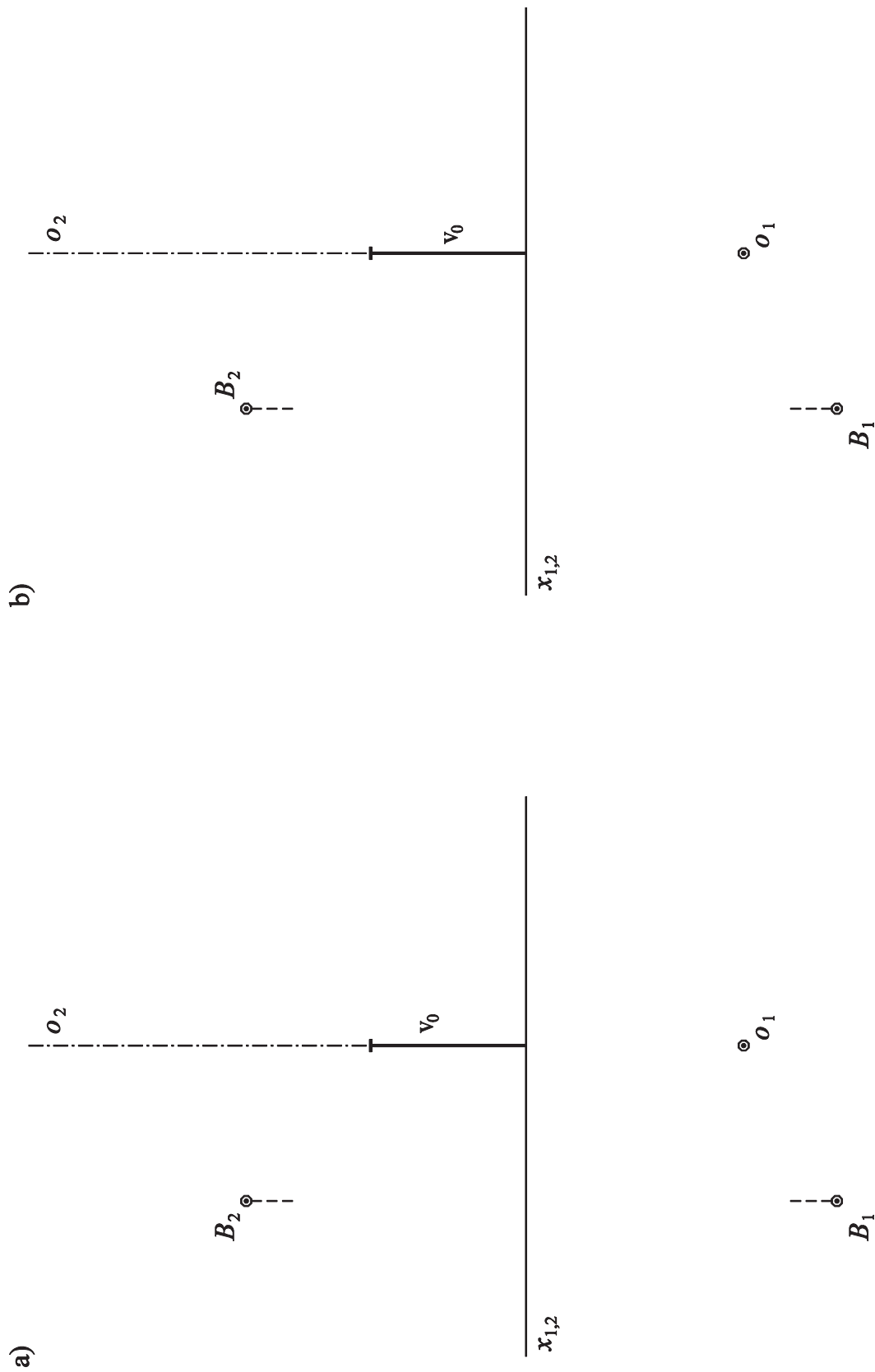


# 6. Helix, helicoidal surfaces

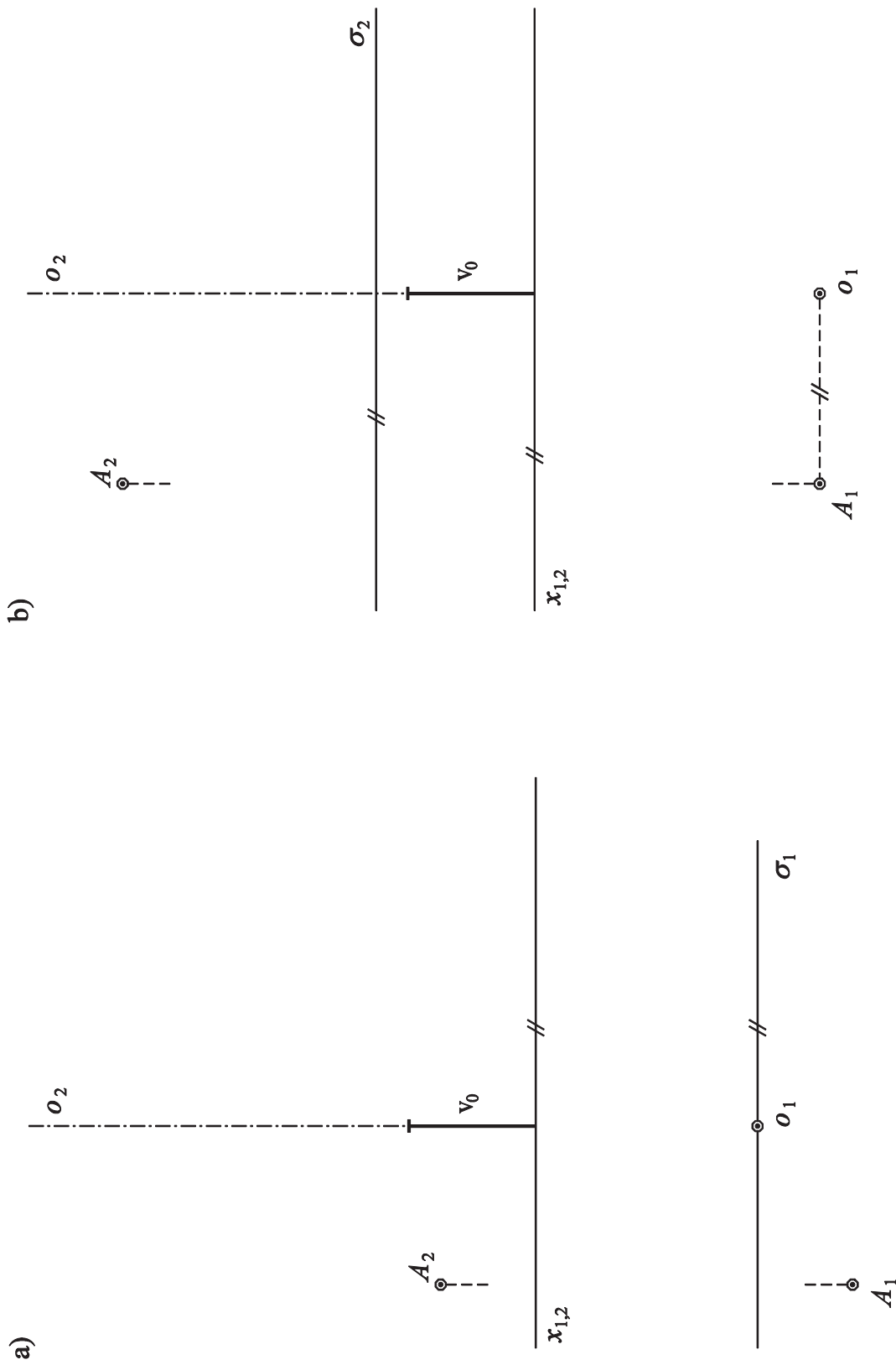
6.1. Considering the given cylinder of revolution (axis  $o$ ) draw a) right-handed, b) left-handed helix generated by screw motion of point  $A$  with lead  $v = 120$  mm. Use Monge projection.



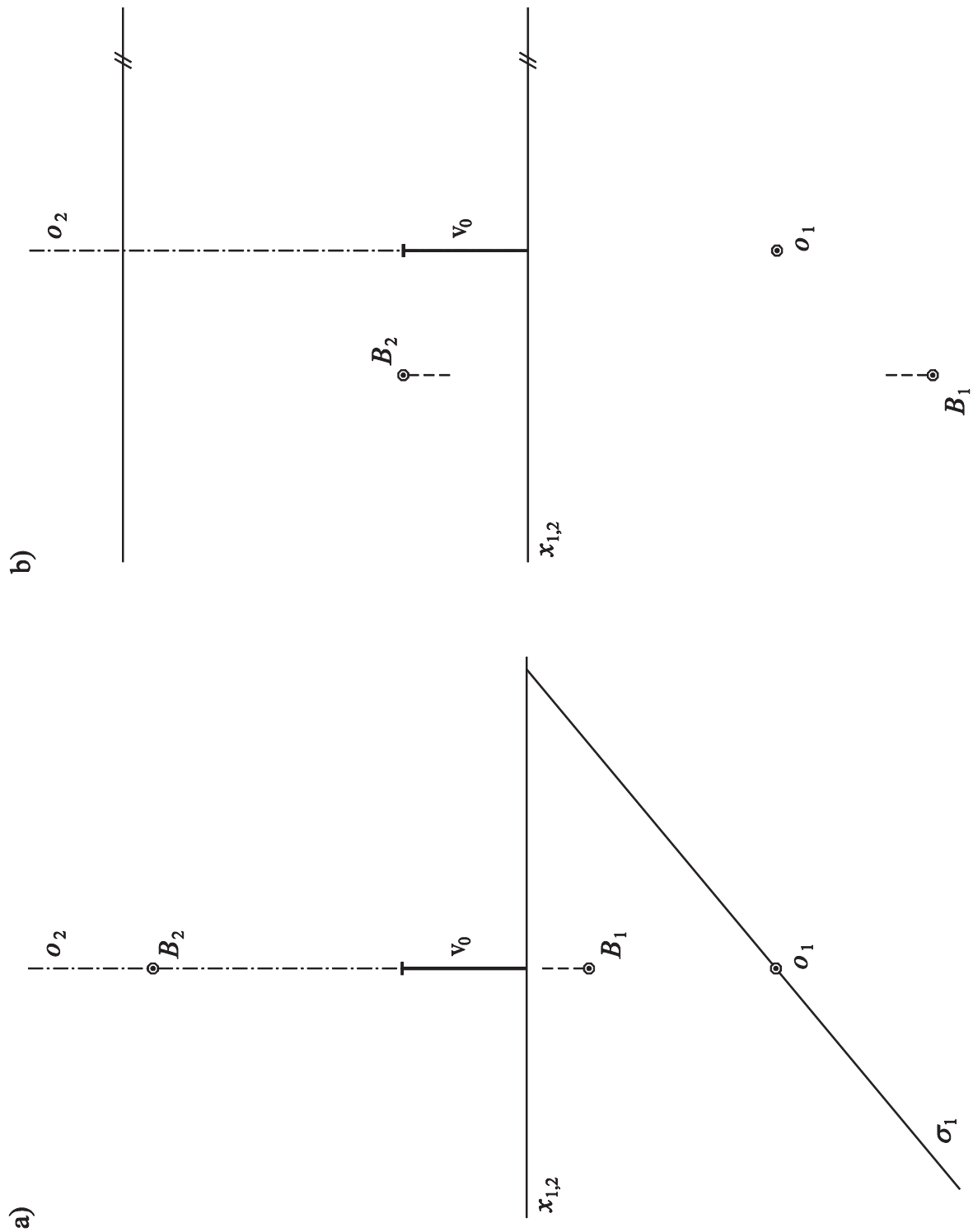
6.2. Helix ( $B$ ,  $o$ ,  $v_0$ , a) right-handed, b) left-handed) is given. Using Monge projection construct tangent line to the helix at its generating point  $B$ .



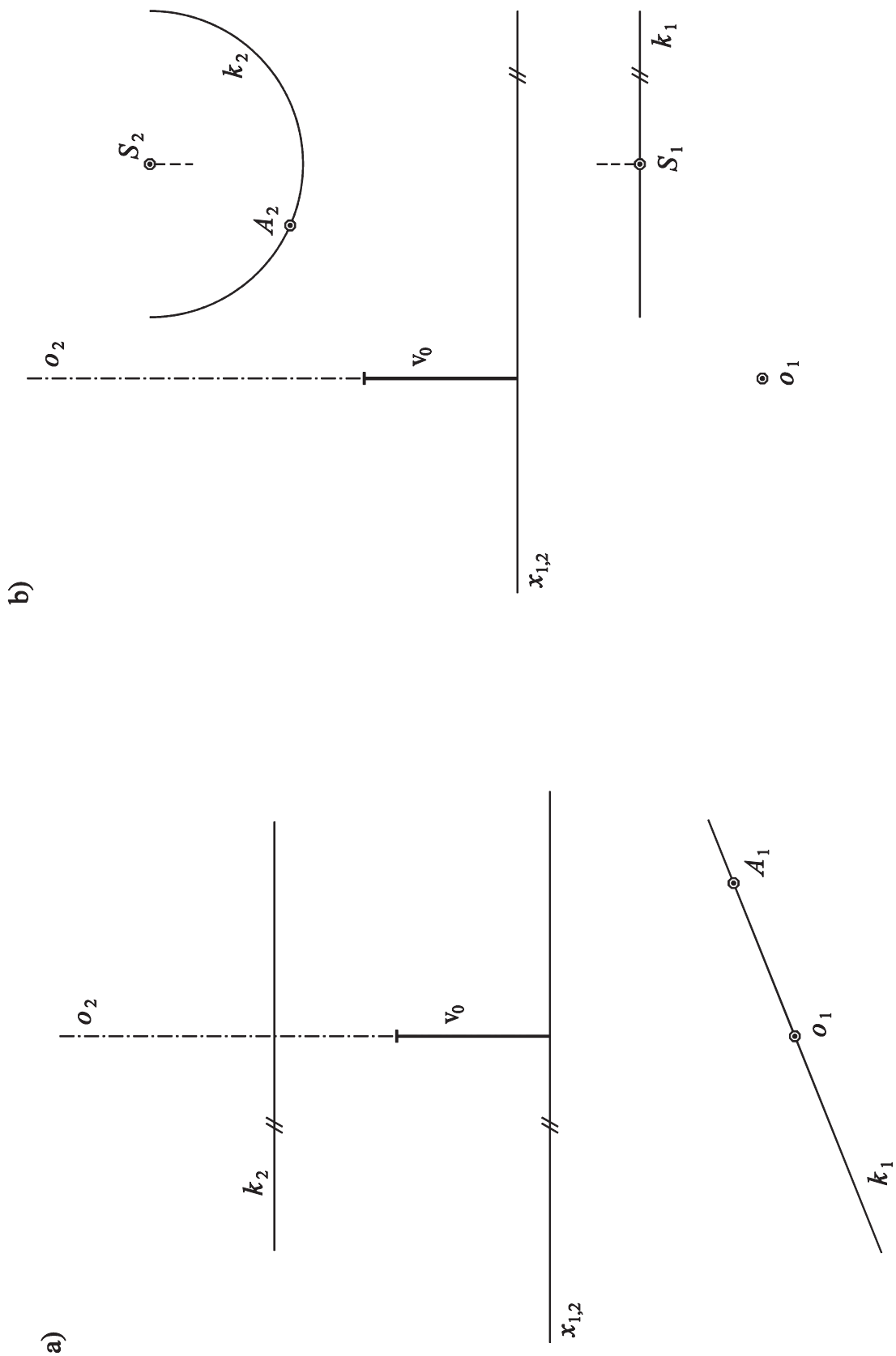
6.3. Helix  $(A, o, v_0, \text{right-handed})$  is given. Using Monge projection construct intersection  $R$  of the helix and the given plane  $\sigma$ . Construct tangent line to the helix at point  $R$ .



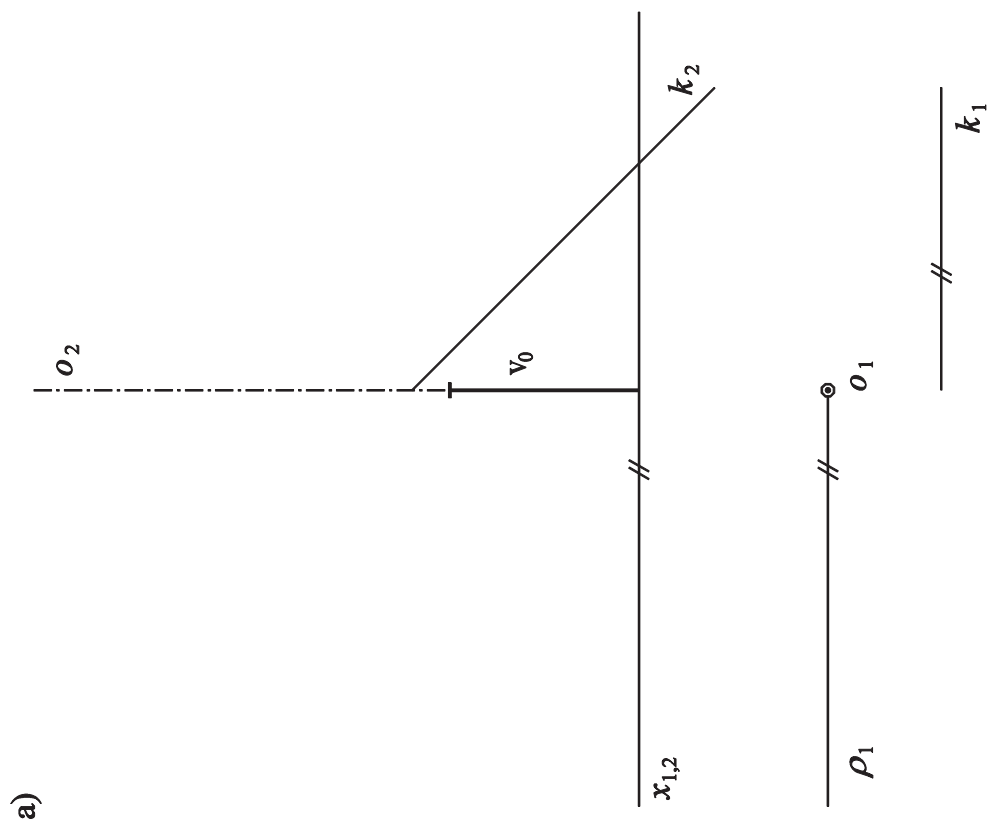
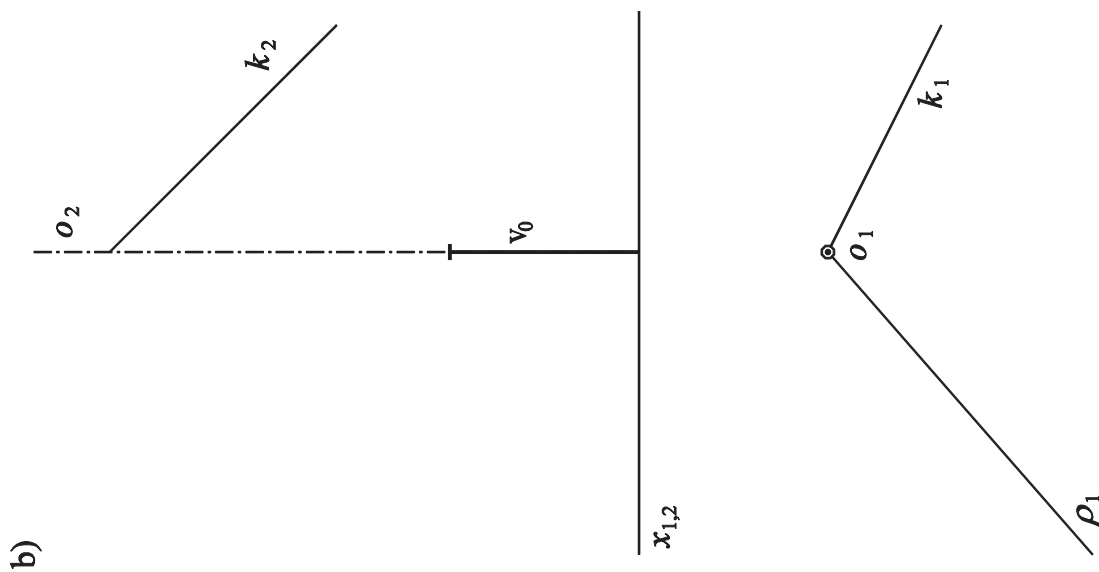
6.4. Helix  $(B, o, v_0, \text{left-handed})$  is given. Using Monge projection construct intersection  $R$  of the helix and the given plane  $\sigma$ . Construct tangent line to the helix at point  $B$ .



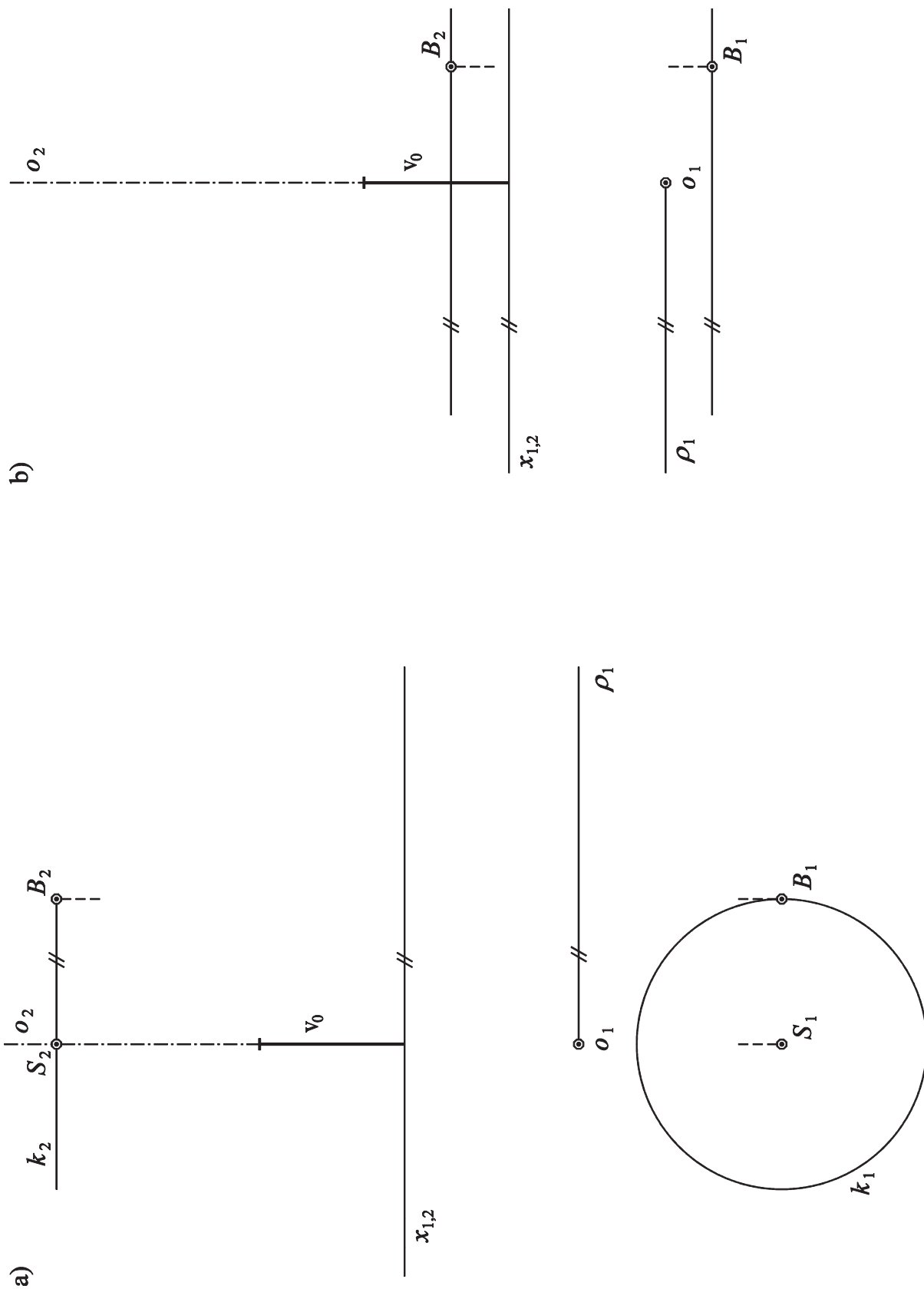
6.5. Helicoidal surface  $(k, o, v_0, a)$  right-handed, b) left-handed) is given. Using Monge projection, construct tangent plane  $\tau$  at point  $A \in k$ .



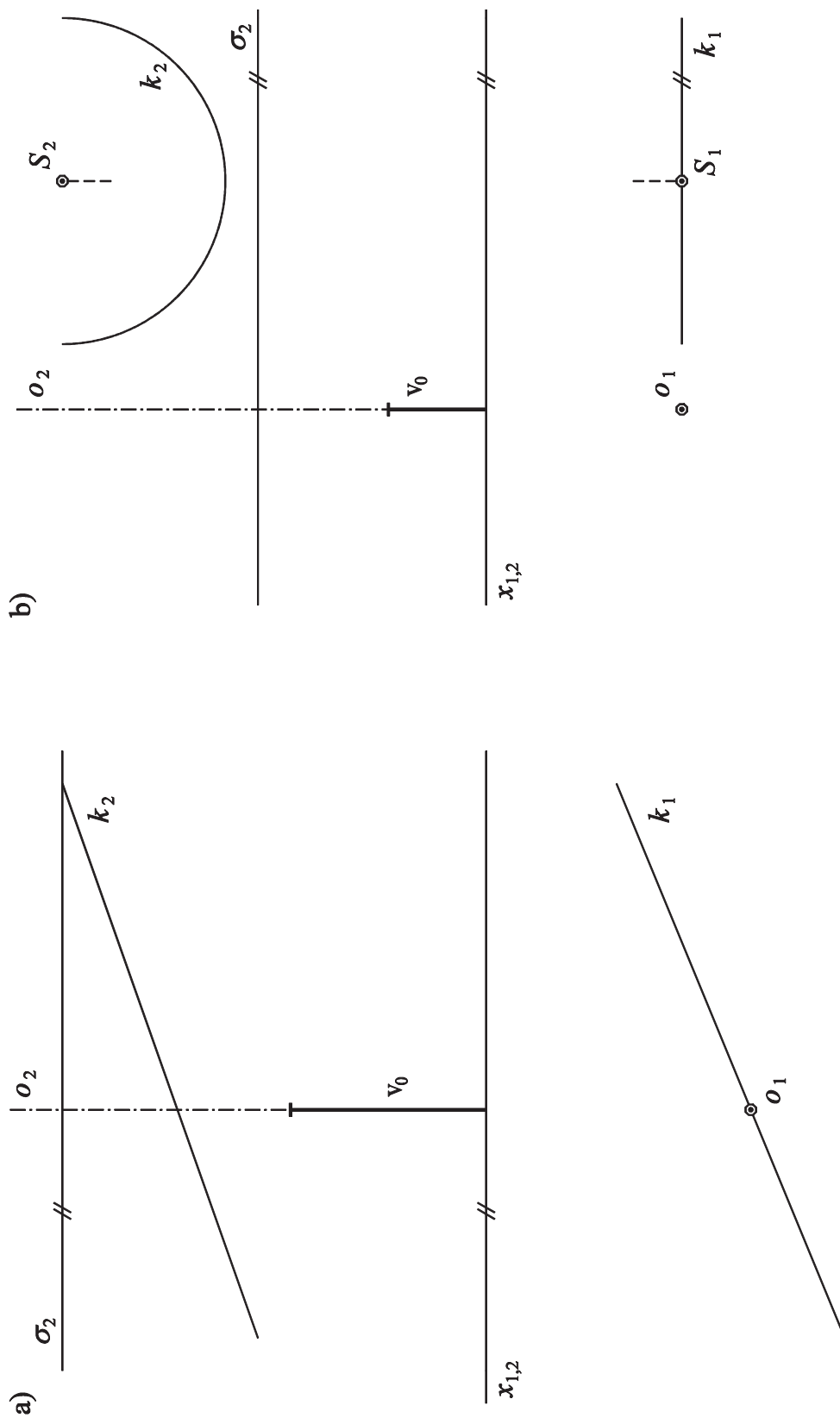
6.6. Helicoidal surface  $(k, o, v_0, a)$  left-handed, b) right-handed) is given. Using Monge projection construct the intersection of the surface and the given plane  $\rho$ .



6.7. Helicoidal surface ( $k, o, v_0$ , left-handed) is given. Using Monge projection construct tangent plane  $\tau$  of the surface at point  $B$ . Construct the curve of intersection  $m$  of the surface and the given plane  $\rho$  (principal half-meridian).

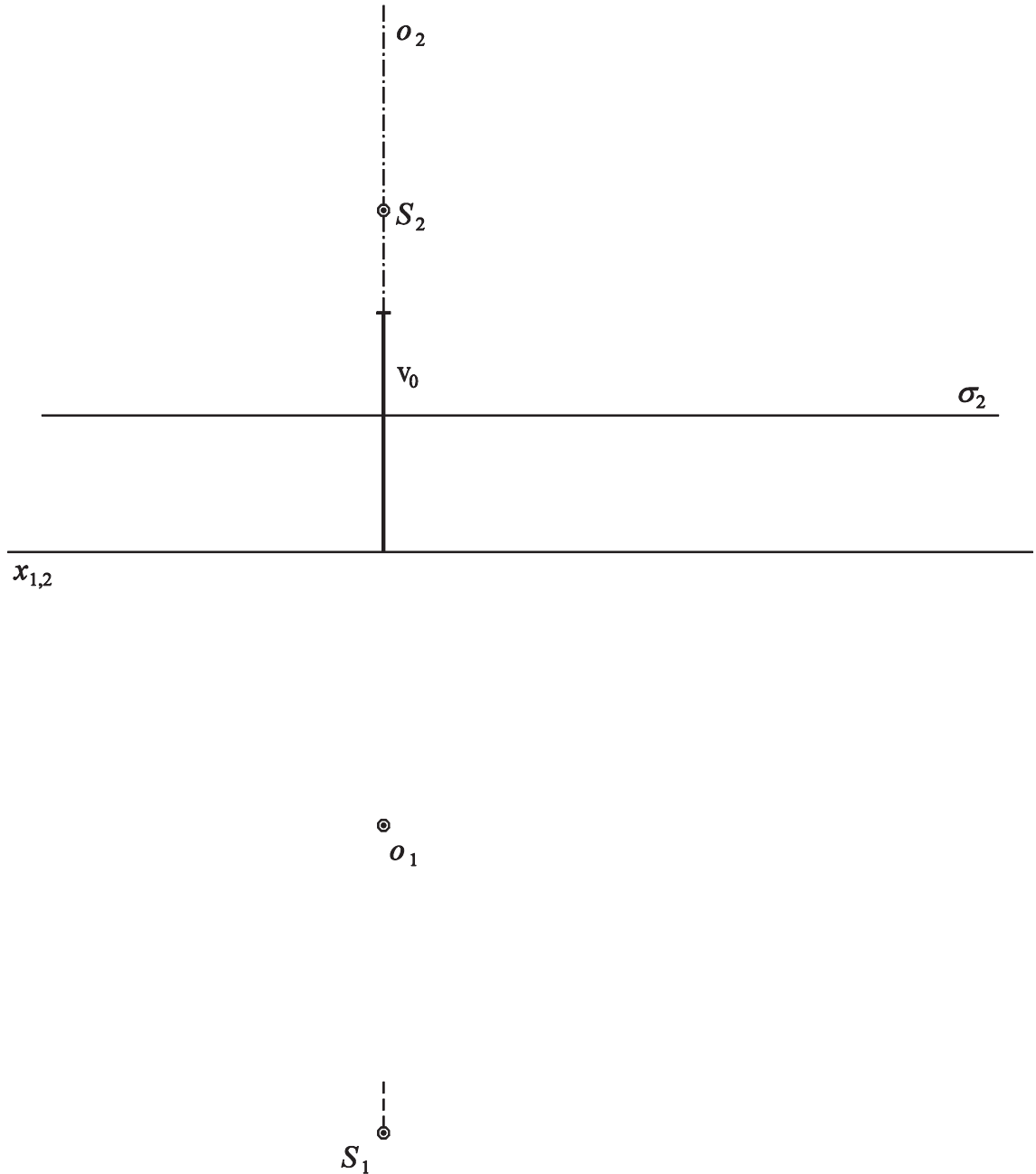


6.8. Helicoidal surface  $(k, o, v_0, \text{right-handed})$  is given. Using Monge projection construct the curve of intersection  $n$  of the surface and the given plane  $\sigma$  (normal section).





- 6.9. Serpentine of Archimedes is given by centre  $S$ , radius  $r = 30$  mm and left-handed screw motion  $(o, v_0)$ . Using Monge projection construct the generating circle. Construct the normal section  $n$  of the helicoidal surface by the given plane  $\sigma$ .



6.10. Helicoidal surface  $(k, o, v_0, \text{right-handed})$  is given.

- a) Using Monge projection construct tangent plane  $\tau$  of the surface at point  $B$ . Construct the normal section  $c$  of the surface and the given plane  $\sigma$ .
- b) Using Monge projection construct principal half-meridian of the surface in the given plane  $\rho$ .

