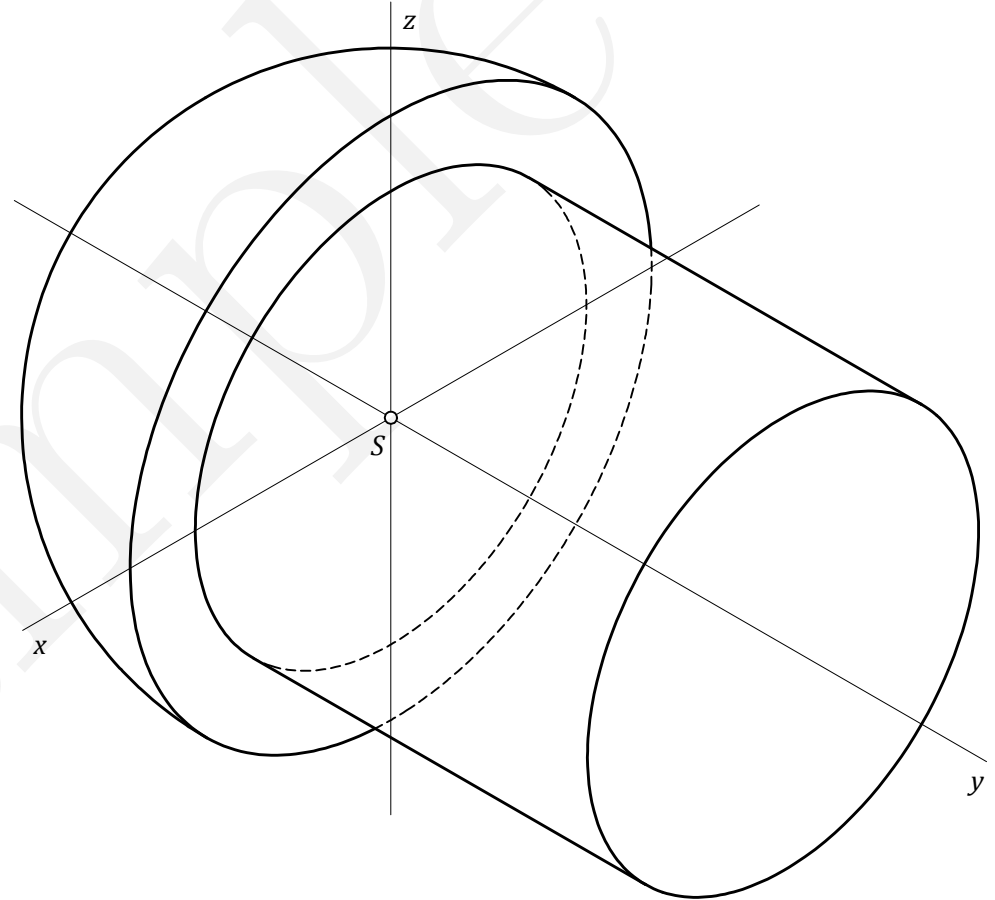
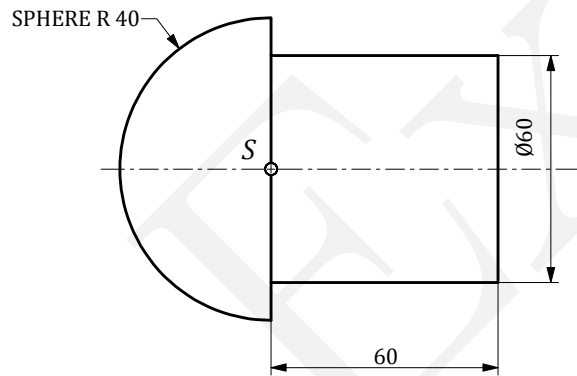


<b>B</b>	<b>CONSTRUCTIVE GEOMETRY</b>					<b>E011021</b>	
Surname							
First name							
Date	Examiner			Grade			
Score	1	2	3	4	5	6	Total

1. Construct the rotary solid given by technical drawing in technical isometry. Point  $S$  lies at origin and axis of revolution of the solid is identical with  $y$ -axis of coordinate system.



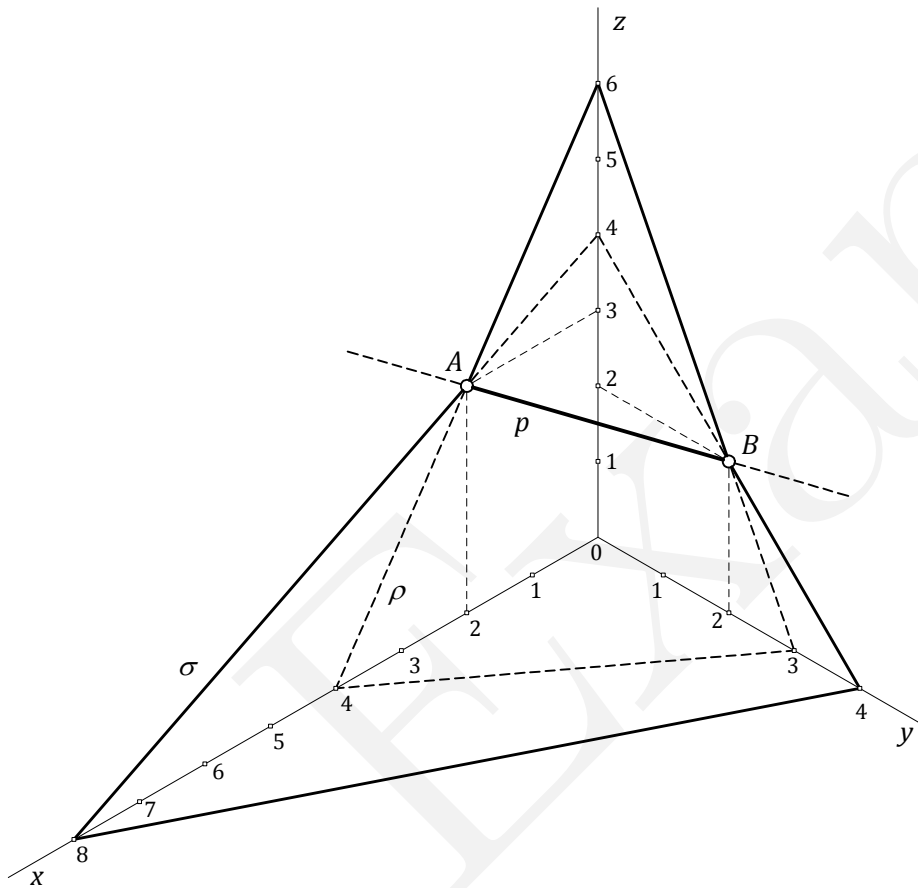
2. Two planes are given

$$\rho: \frac{x}{8} + \frac{y}{4} + \frac{z}{4} = 1, \quad \sigma: \frac{x}{4} + \frac{y}{3} + \frac{z}{6} = 1.$$

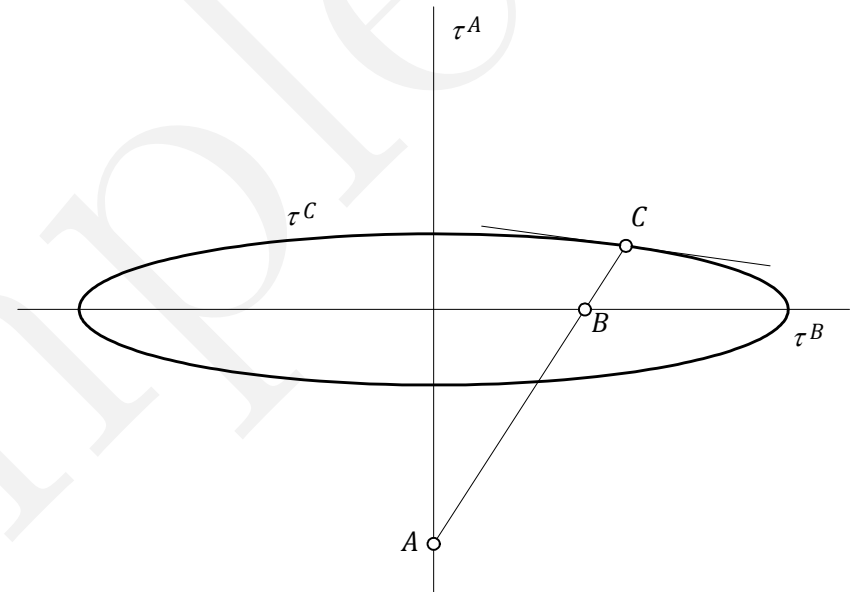
Draw both planes in technical isometry, determine intersection curve  $p = \rho \cap \sigma$  and calculate angle  $\varphi$  formed by planes  $\rho$  and  $\sigma$ .

$$A = (2, 0, 3), \quad B = (0, 2, 2), \quad \mathbf{u} = \mathbf{AB} = (-2, 2, -1), \quad p: \mathbf{P}(t) = (2-2t, 2t, 3-t),$$

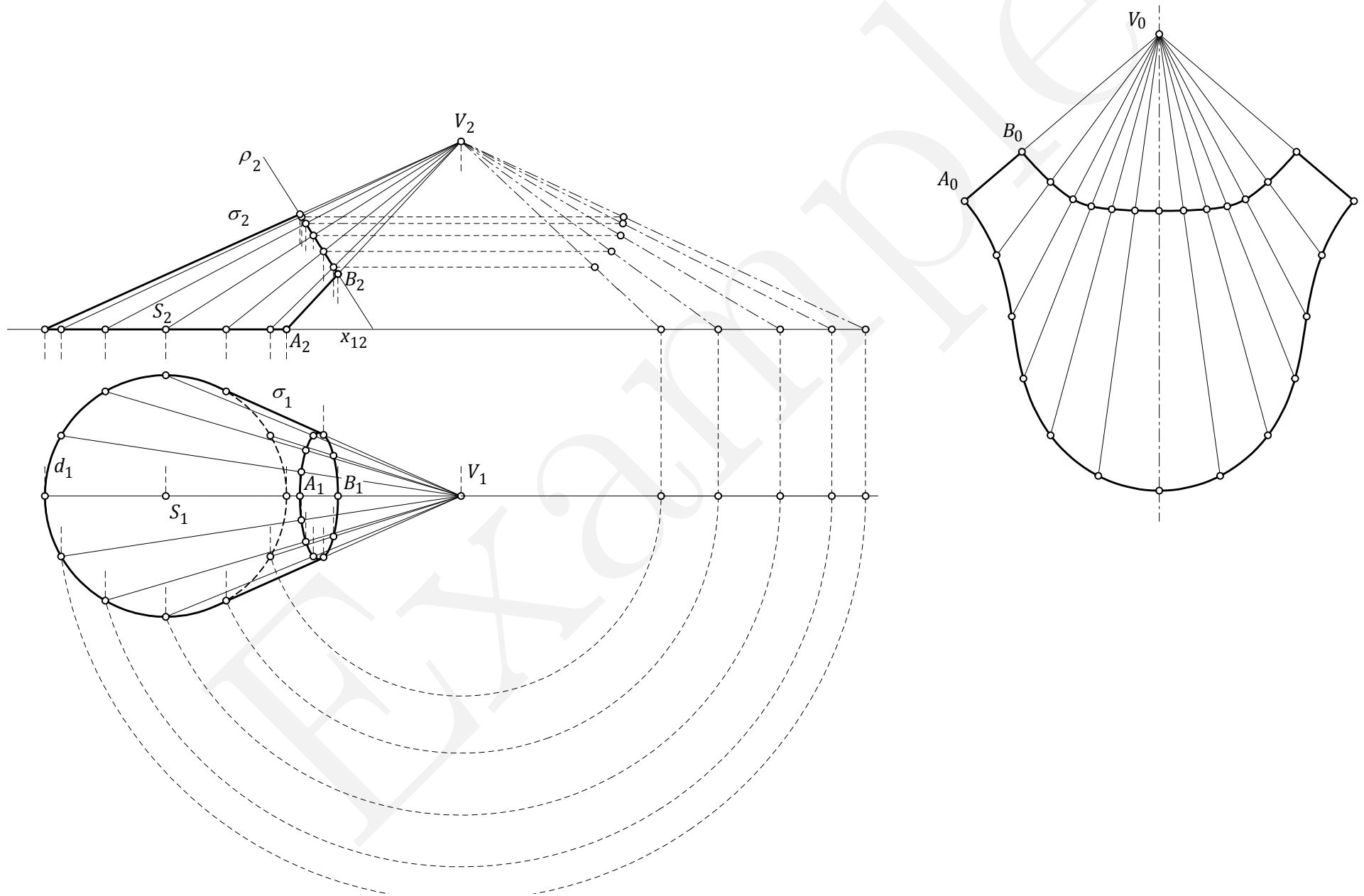
$$n_\rho = (1, 2, 2), \quad n_\sigma = (3, 4, 2), \quad \cos \varphi = \frac{5}{\sqrt{29}}.$$



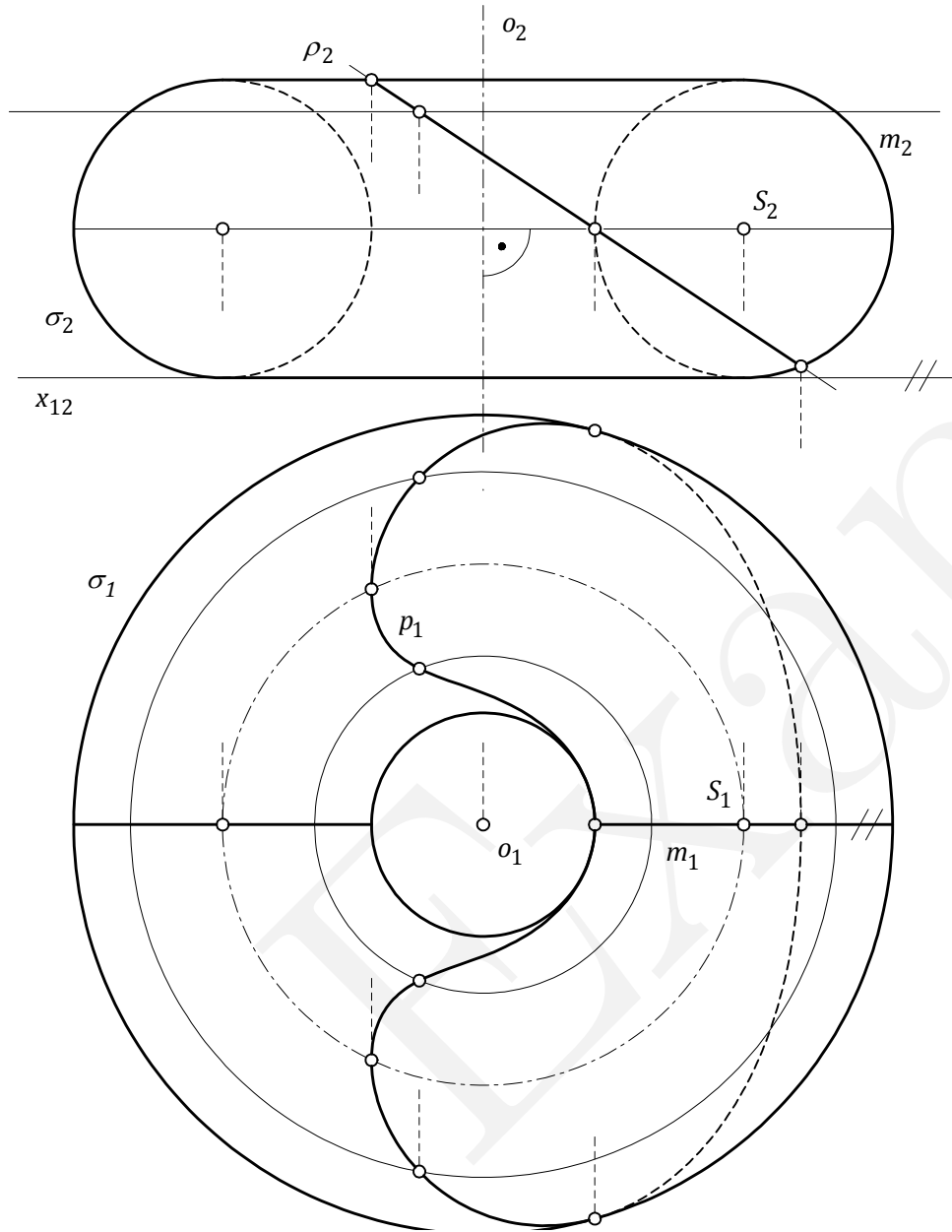
3. Motion is given by trajectories  $\tau^A$  and  $\tau^B$  of points  $A$  and  $B$ . Construct three new positions of moving point  $C$ . Construct tangent lines to trajectory  $\tau^C$  of point  $C$  at all positions and sketch the trajectory  $\tau^C$ .



4. Construct the development of oblique cone  $\sigma$  between the horizontal plane of projection and plane  $\rho \perp \nu$ .



5. The surface of revolution  $\sigma = (m, o)$  and section plane  $\rho \perp \nu$  are given. Using Monge projection, construct intersection curve  $p = \sigma \cap \rho$ . Indicate the visibility.



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

