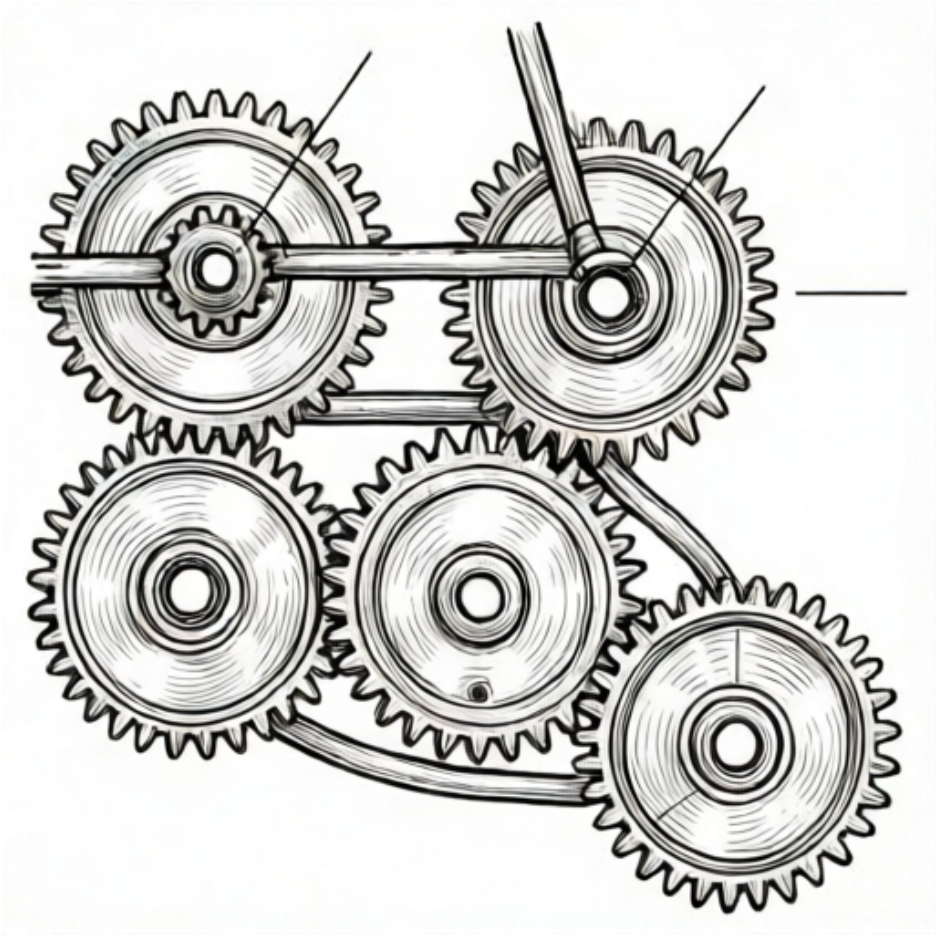
Sketching a Mechanical Gear Train: Tooth Profiles and Shaft Alignment

Topic reference / ordinary illustration



Ordinary topic reference. Hypothetical dimensions in the four tasks are supplied in their own text; this illustration is not their measured answer.

Sketching a Mechanical Gear Train: Tooth Profiles and Shaft Alignment

Worked example / complete source key

Sketch a two-gear train with N1 = 16 and N2 = 24 teeth using p = 4 mm. State pitch diameters, center distance, and the angular pitch for each gear.

Answer: D1 = 16 × 4 / π ≈ 20.4 mm; D2 = 24 × 4 / π ≈ 30.6 mm; center distance C = (20.4 + 30.6) / 2 = 25.5 mm. Angular pitch: 360° / 16 = 22.5° for gear 1 and 360° / 24 = 15° for gear 2. Draw tangent pitch circles, place both centers on one horizontal shaft line, and offset teeth by half an angular pitch at the mesh.