

1	A pair of bevel gears is transmitting 10 kW from a pinion rotating at 600 rpm to gear mounted on a shaft which intersects the pinion shaft at an angle of $60^\circ$ . The pinion has an outside pitch diameter of 200 mm, a pressure angle of $20^\circ$ and a face width of 40 mm, and the gear shaft is rotating at 200 rpm. Determine ( a ) the pitch angles for the gears, ( b ) the forces on the gear, and ( c ) the torque produced about the shaft axis
2	The bevel pinion shown in Fig.14.2 rotates at 960 rev/min in the clockwise direction, viewing from the right side and transmits 5 kW to the gear. The mounting distances, the location of all bearings, and the radii of the pitch circles of the pinion and gear are shown in pitch cones in the figure. Bearings A and C should take the thrust loads. Find the bearing forces on the gear shaft.
3	A pair of bevel gear is mounted on shafts that are at $90^\circ$ apart. The set is to transmit 10 kW at 300 rpm. The pinion has 150 mm outside pitch diameter; 50 mm face width, a diametral pitch of 6, and is 20 degree full depth. For a velocity ratio of 0.4, determine the force acting on gear tooth.
4	Design a pair of bevel gears for two shafts whose axis are at right angles. Speed of pinion shaft is 300 rpm, and that of gear shaft is 120 rpm. The power transmitted is 80 kW at gear shaft.
5	A pair of high grade cast iron bevel gears having shaft at right angle are to have an angular velocity ratio of driver to driven of 2 to3. The driver is to rotate at 175 rev/min and is to transmit 10 KW. It is 0.4 meter in pitch diameter. Take the width of face as about one third of the length of pitch element and determine the pitch of the gear.