RACK AND PINION

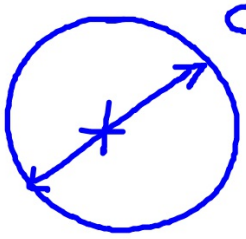
Formulas

Module → $m = \frac{dp}{z}$

$p = m \cdot \pi$ (mm)

p = distance between two teeth

p = paso



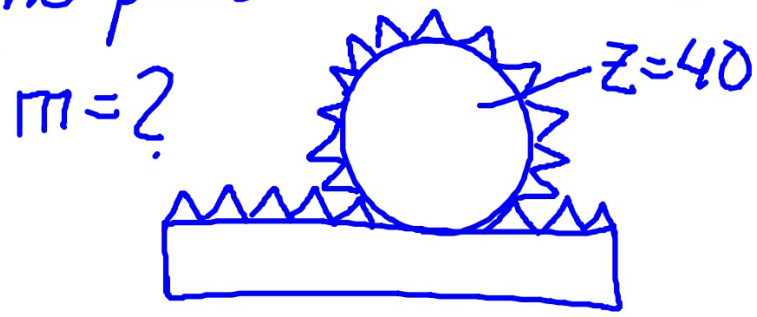
dp: diameter of the pinion

z: number of teeth

EXERCISE

The following image represents a rack and pinion mechanisms. The pinion has 40 teeth and a module of 2. Calculate:

a) The movement of the rack when the pinion rotates 3 times.



$$p = m \cdot \pi = 2 \times \pi \simeq 6'28\,mm$$

$$3\ \text{turns of the pinion} \times \frac{40\ \text{teeth}}{1\ \text{turn}} \times \frac{1\ \text{rack tooth}}{1\ \text{pinion tooth}} \times \frac{6'28\,mm}{1\ \text{rack tooth}} =$$

$$= 753'60\,mm$$