BASIC SCIENCE AND TECHNOLOGY 2

(1) Calculate the gear ratio of a driving gear of 40 teeth and 120 teeth driven gear.

SOLUTION:

GR = Gear ratio, T1 = Driving gear and T2 = Driven gear

$$GR = \frac{T^2}{T^1}$$

$$GR = \frac{120}{40}$$

$$GR = \frac{12}{4}$$

$$GR = \frac{3}{1} = 3 : 1$$

$$GR = 3 : 1$$

(2) Calculate the speed ratio of an input gear of 30 teeth and output gear of 90 teeth.

SOLUTION:

GR = Gear ratio, T1 = Output gear and T2 = Input gear, Speed ratio = SR = $\frac{1}{GR}$

$$GR = \frac{Input gear}{Output gear}$$

$$GR = \frac{T2}{T1} = \frac{30}{90}$$

$$GR = \frac{3}{9}$$

$$GR = \frac{1}{3} \text{ or } 1:3$$

$$SR = \frac{1}{GR} = \frac{1}{1/3} = 3:1$$