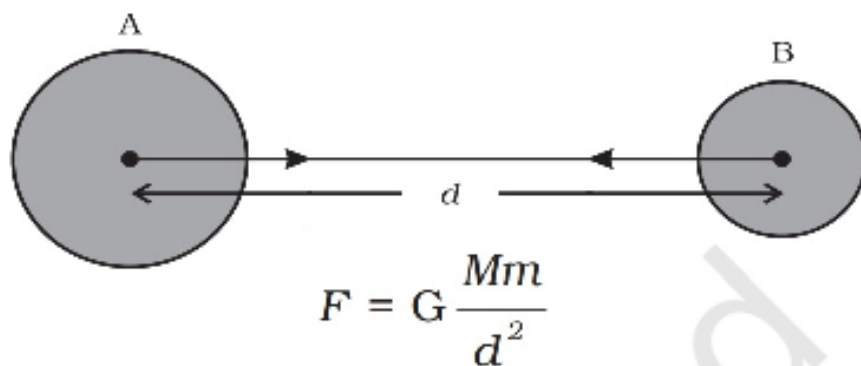


**Image**



**Fig. 10.2:** The gravitational force between two uniform objects is directed along the line joining their centres.

Let two objects A and B of masses  $M$  and  $m$  lie at a distance  $d$  from each other as shown in Fig. 10.2. Let the force of attraction between two objects be  $F$ . According to the universal law of gravitation, the force between two objects is directly proportional to the product of their masses. That is,

$$F \propto M \times m \quad (10.1)$$

And the force between two objects is inversely proportional to the square of the distance between them, that is,

$$F \propto \frac{1}{d^2} \quad (10.2)$$

Combining Eqs. (10.1) and (10.2), we get

$$F \propto \frac{M \times m}{d^2} \quad (10.3)$$

or, 
$$F = G \frac{M \times m}{d^2} \quad (10.4)$$

