a force of 200N is applied to a 50kg mass in the direction of motion for a distance of 6m and then the force is increased to 300N for the next 5m , for the 11m of travel, how much work is done by varying the force?

Solution:

The work done by a constant force of magnitude F on a point that moves a displacement d in the direction of the force is the product

$$W = F * d$$

So, work on first part equals:

$$W_1 = F_1 d_1$$

And for second:

$$W_2 = F_2 d_2$$

And total work:

$$W = F_1 d_1 + F_2 d_2 = 200 * 6 + 300 * 5 = 2700\, J$$

Answer: 2700 J