Answer on Question #64899 – Physics – Other

Question: a body at rest is accelerated at the rate of 0.8 ms^2 for 3 s under a constant force of 50 N. What is the work done on the body?

Answer:

The work done on the body is the product of the force that acted on it and the distance that the body travelled under its influence:

$$W = F \cdot d$$

Since the body moved with constant acceleration a, the distance d can be determined from the following equation:

$$d = \frac{at^2}{2}$$

Therefore,

$$W = F \cdot d = F \cdot \frac{at^2}{2} = 50 \cdot \frac{0.8 \cdot 3^2}{2} \text{ J} = 180 \text{ J}$$