

Answer on Question#37706 – Physics – Others

4 men lift 250kg box to a height of 1m and hold it without raising or lowering it.

(a)How much work is done by the men in lifting the box?

(b)how much work do they do in just holding it?

(c)Why do they get tired while holding it?

Solution:

(a) Work done by the men in lifting the box

$$W = mgh = 250 \cdot 10 \cdot 1 = 2500J$$

(b) Work done by the men in holding the box

$$W = F \cdot s = mg \cdot 0 = 0$$

(c) To hold the block against gravity, there is need to apply a force equals to the weight of the body in upward direction. So, they get tired of holding it for long time.