

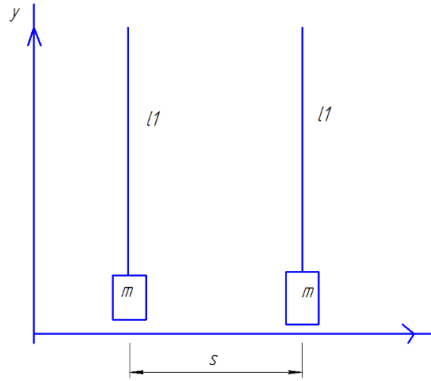
A 115kg mail bag hangs by a vertical rope 3.6m long. A postal worker then displaces the bag to a position 2.1m sideways from its original position, always keeping the rope taut.

1)What horizontal force is necessary to hold the bag in the new position?

2)As the bag is moved to this position, how much work is done by the rope?

3)As the bag is moved to this position, how much work is done by the worker?

Solution:



1. What horizontal force is necessary to hold the bag in the new position?

$$F=mg= 115*9.81=1128.15\text{N}$$

2)As the bag is moved to this position, how much work is done by the rope?

$$A(\text{rope})= 0\text{ J}$$

3)As the bag is moved to this position, how much work is done by the worker?

$$A(\text{worker})= 0\text{ J}$$

In the gravitational field strength transfer operation does not depend on the shape and dimensions of the path along which the movement takes place.

The work depends only on the potentials of the starting and ending point.