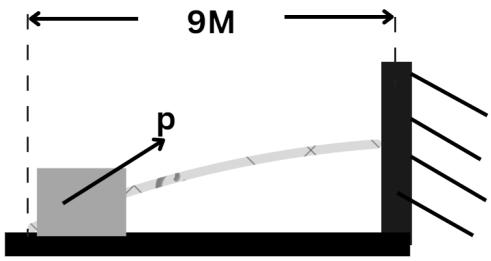
5.3.1a Block on a bar



Question
If the total work exerted is $\frac{\mathbf{12p}}{\sqrt{\mathbf{2}}}$. Moreover, the height of the bar is 3m and the angle $\boldsymbol{\theta = 45}$ find the distance traveled ,$\boldsymbol{d}$ in the horizontal direction.

Using known expressions:
$U = \int_0^{height} p \times sin\theta^{dy} + \int_0^{horizontaldistance} p \times cos\theta dx$
$U = 3psin\theta + dpcos\theta$

Given:

$U = \frac{12p}{\sqrt{2}}$

Solution:

$\frac{12p}{\sqrt{2}} = \frac{3p}{\sqrt{2}} + \frac{dp}{\sqrt{2}}$
$d = 9m$