Question#14583

There is a 100kg object on a 30-degree incline ramp.
A motor with a string attached to the object accelerates the object at 0.22 m/s^2
The mew of friction is 0.5. What is the power output of the motor?

Solution:

Let:

$m = 100\ kg$

$\alpha = 30°$

$a = 0.22\ m/s^2$

$\mu = 0.5$

$N - ?$

$N = \mu F v = \mu F a t$

$N = \mu(mg cos\alpha + ma)at$

$N = 95.78W$

Answer: 95.78 W