Work-Energy Quiz 6.0

1. What is the work done by a force of 12N which pushes a 3kg block 5m across a table top?

2. What work is done by a person pulling on a rope attached to a block if the rope is at a 60^0 angle with the horizontal, the block moves 4m and the tension in the rope is 15N?

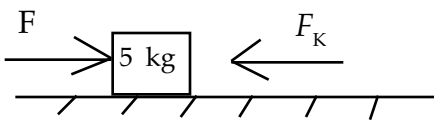
$W = F \cdot d$ and $W = (F \cdot \cos\theta)d$

$K = \frac{1}{2}mv^2$

$W_{NET} = \Delta K = K_f - K_0$ (Work-Energy Theorem)

$[W] = N \cdot m = J$ (joule) $[K] = J$

3. A 10N force (F) pushes a box horizontally across the floor. The kinetic friction force is 6N. If the block starts from rest and moves 7m while being pushed:
(a) What is the work done by the pushing force?
(b) What is the work done by the friction force?
(c) What is the work done by the force of gravity?
(d) What is the net work done on the box?
(e) What is the increase in kinetic energy?
(f) What is the final speed of the box after 7m?



4. How much work is done by a person on a box of mass 7kg as the person walks 3m up a flight of stairs?

5. How much work is done by the force of gravity as an 8kg mass falls 9m to the ground?

6. Can a normal force ever do work as an object slides across a surface?

7. If a braking force of 400N acts on a car for 3m, how much kinetic energy is transferred to the car?

8. A cart is moving to the right at 3m/s on a frictionless floor. It's rocket boosters are then turned on, and the cart is accelerated to the right for 11m with a force of 2000N.
(a) How much work is done by the rockets?
(b) How much work is done by the normal force of the floor if the cart weighs 800N?
(c) $\Delta K = ?$
(d) What is the cart's final speed?