

PHYSICS WORK2:

Make sure you have finished:

Reading Sec 5-1, 5-2

Notes on types and sources of energy

Science Sleuths Collapsing bleachers with force diagram(handed in)

Energy transformations for each time period (handed in)

Sec Review 5-1 pg 171 (checked off)

Work by Constant Force

$Work = Force * Dist * \cos \theta$

•Example: You pull a 30 N chest 5 meters across the floor at a constant speed by applying a force of 50 N at an angle of 30 degrees. How much work have you (Tension) done?

Where did the energy go?

$Work = Force * Dist * \cos \theta = 50 N * 5 m * \cos (30) = 43.3 N * 5 m = 216 N m = 216 Joules$

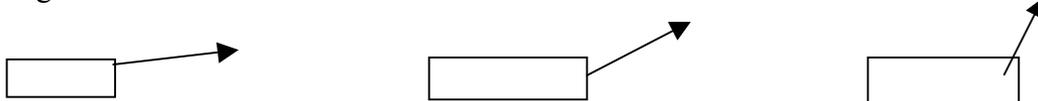
•Example: You pull a 30 N chest 5 meters across the floor at a constant speed by applying a force of 50 N at an angle of 30 degrees. How much work did gravity do?

Gravity did 0 work!

□ How much work did friction do?

Friction pulled with 43.3 N of force (opposite the pull) so it was -216 Joules of Work

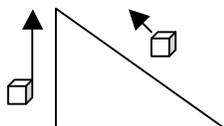
Pull a block horizontally for the same distance at a constant speed, with a scale at three different angles and calculate the work in each case.



Work Lifting a Cart

•Going straight up:

work = **force** · distance



Going up ramp:

work = force · **distance**

•The work is the same, either way!

Ramp partially supports object's weight

Ramp exchanges force for distance

Overall work done is unchanged

Investigation:

What occurs when a machine does work on an object?

Calculate the work in and the work out of a lever with two different masses balanced.



Try to explain the difference.

Physics Concept Mechanical Advantage

–Doing the same amount of work

–Redistributing force and distance

HW: Practice 5A problems Start Reading 8-4