

Chapter 6 - Work, Power & Efficiency

6-1 Work + Energy

Types of Energy - thermal, electrical, etc.
 - mechanical energy (kinetic, potential)

Work - the transfer of energy to an object

$$W = F_{\parallel} \Delta d$$

where W is the work done on the object (J)

NOTE:
 Work is a scalar
 quantity

F_{\parallel} is the force acting in the direction
 of the displacement (N)

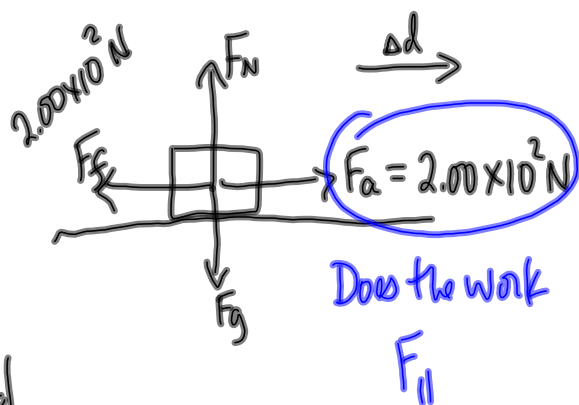
Δd is the displacement (m)

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$$\Delta d = 3.00 \text{ m}$$

$$F_a = 2.00 \times 10^2 \text{ N}$$

$$W = ??$$



$$W = F_{\parallel} \Delta d$$

$$W = (2.00 \times 10^2 \text{ N})(3.00 \text{ m})$$

$$W = 6.00 \times 10^2 \text{ J}$$

← The work done to move the desk.

Situations when no work is done:

- ① You apply a force, but there is no displacement
- ② There is displacement, but no force (frictionless scenario)
- ③ When the force acts perpendicularly to the direction of motion.

* See p222-223

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