## Work



### Work

- What is work?
  - Work is the transfer of energy
    - It is accomplished by applying a force to move an object a distance
- Variable: W
- Unit: Joules (J)
  - 1 Joule = 1 Newton Meter
- Formula: Work = Force x Distance
  - W = F · d





#### Work Example Problems

1. How much work is done when a 50N force moves an object 2m? JW = FJ = (50N)(2m) = (100 J)

 $\sum_{n_0}$ 

#### Work Example Problems

 $\mathbb{N}$ 

How much force is needed to move an object 10m by doing 300J of work?

#### Work Example Problems

3. How far will an object move if 25N of force are applied when 500J of work are done?





## Work Example Problems $9 = 9 \cdot 8 \text{ MS}^2$ $f_5 = Mg$ 4. A force is used to raise a 20kg object 2m. How much work is done?

 $W = F d = mg d = (20 kg \chi 9.8 m/s)(2m)$  W = 3923



# Work Example Problems M=4kg 5. A student holds two 2kg books 1.5m above the floor. How much work does the student do?

 $d = 0m \quad w = Fd$ 

