

get your clicker

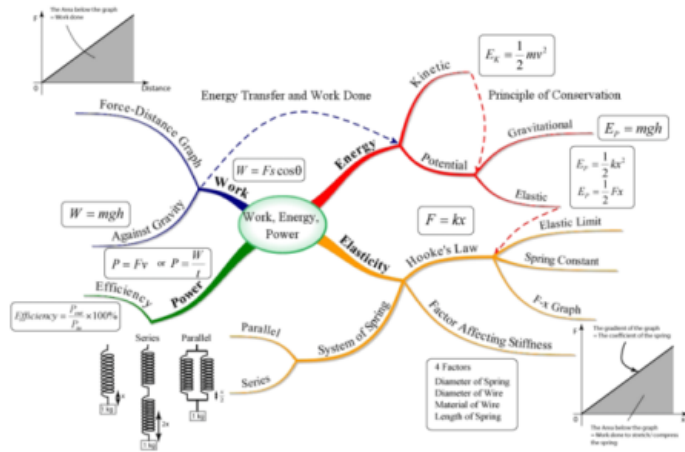
Review for Test tomorrow (Chapter 7)

Concepts

- Work
- Kinetic Energy
- Power

Units

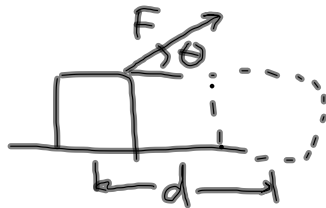
- Joule, Calorie
- Watt, horsepower



Jan 13-8:17 AM

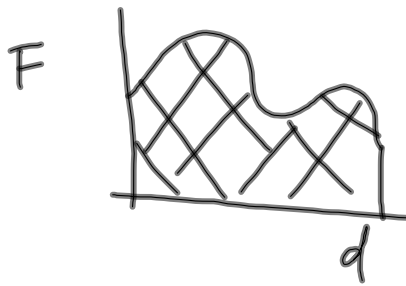
$$W = F d \cos \theta$$

W	WORK	JOULE (J)
F	FORCE	N
d	DISPLACEMENT	m
θ	ANGLE BETWEEN F & d	DEG

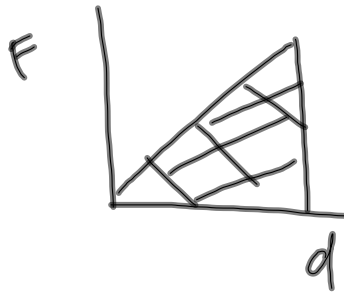


Jan 13-8:35 AM

WORK DONE BY VARIABLE FORCE  
(NON CONSTANT)



$W = \text{AREA UNDER CURVE OF } F \text{ v. } d \text{ GRAPH}$



FOR SPRING

$$W = \frac{1}{2} k x^2$$

$k$	SPRING CONSTANT	N/m
$x$	STRETCH OR COMPRESSION	m

Jan 13-8:39 AM

$$P = \frac{W}{t} = Fv \cos \theta$$

P	POWER	W, hp	} 1 Cal = 4186 J
W	WORK	J, Cal	
t	TIME	s	} 1 hp = 746 W
F	FORCE	N	
v	VELOCITY	m/s	
$\theta$	ANGLE BETWEEN F & v	DEG	

Jan 13-8:42 AM

WHAT DO YOU GET FOR YOUR WORK?

- KINETIC ENERGY

$$K = \frac{1}{2} m v^2$$

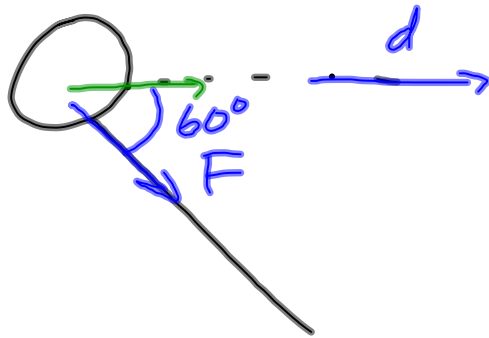
K	KINETIC ENERGY	J
m	MASS	kg
v	VELOCITY	m/s

Jan 13-8:45 AM

WORK-KINETIC ENERGY THEOREM

$$W_{\text{NET}} = \Delta K$$

Jan 13-8:48 AM



Jan 13-9:00 AM

B

$$K_B = \frac{1}{2} m_B v_B^2$$

$$\left. \begin{array}{l} m_A = 3m_B \\ v_A = 3v_B \end{array} \right\}$$

$$K_A = \frac{1}{2} (3m_B) (3v_B)^2$$

$$= \textcircled{27} \left( \frac{1}{2} m_B v_B^2 \right)$$

Jan 13-9:09 AM

$$m = 60 \text{ kg}$$

$$d = 4.0 \text{ m}$$

$$t = 4.2 \text{ s}$$

$$P = \frac{W}{t} = \frac{F d}{t} = \frac{mgd}{t}$$

Jan 13-9:15 AM

$$W = \frac{1}{2} k x^2$$

$$= \frac{1}{2} k (2x)^2$$

$$= 4 (W)$$

Jan 13-9:19 AM