Honor Statement

As a member of the Tower Hill community, I pledge to uphold the core values of honesty, responsibility and respect and will not lie, cheat, mislead or steal. I will commit to the spirit and letter of this code by making good decisions, leading by example and taking accountability for my actions. I realize I am responsible for enforcing the honor code by reporting any infraction I witness or become aware of within the community. I agree to comply with this Honor Statement and the policies outlined in the Upper School Student Handbook.

On my honor, I have neither given nor received any unauthorized assistance on this assignment or assessment.

_____Name

Physics Test 6: Momentum and Energy

45 minutes

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

$$p = m\,v$$

$$KE = \frac{1}{2} m\,v^2$$

$$J = F\,t \qquad J = \Delta p$$

$$PE = mgh$$

$$e = v_{sep}/v_{app}$$

$$\Delta E = W$$

$$F_s = -\,k\,x$$

$$PE_s = \frac{1}{2}\,k\,x^2$$

$$k_{\parallel} = k_1 + k_2 + \ldots \qquad \frac{1}{k_{ser}} = \frac{1}{k_1} + \frac{1}{k_2} + \ldots$$

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

Symbol	Stands for..	Units	When/how to use the equation

$$PE = mgh$$

Symbol	Stands for..	Units	When/how to use the equation

$$KE = 1/2\, m\, v^2$$

Symbol	Stands for..	Units	When/how to use the equation

$$\Delta E = W$$

Symbol	Stands for..	Units	When/how to use the equation

$$P = W/t$$

Symbol	Stands for..	Units	When/how to use the equation

$$p = m\,v$$

Symbol	Stands for..	Units	When/how to use the equation

$$J = F\,t$$

Symbol	Stands for..	Units	When/how to use the equation

$$J = \Delta p$$

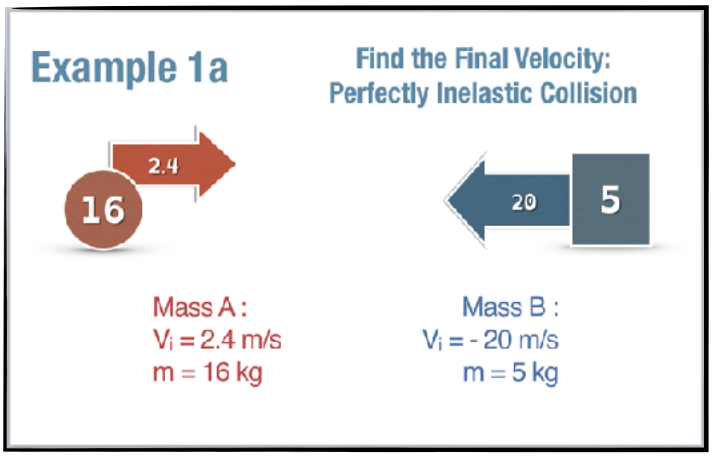
Symbol	Stands for..	Units	When/how to use the equation

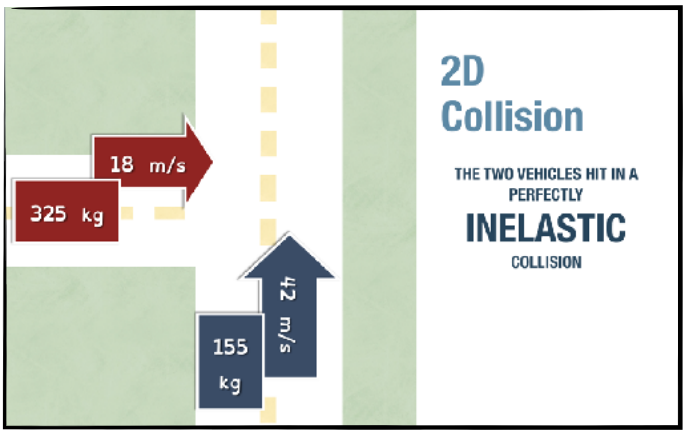
$$e = v_{sep} / v_{app}$$

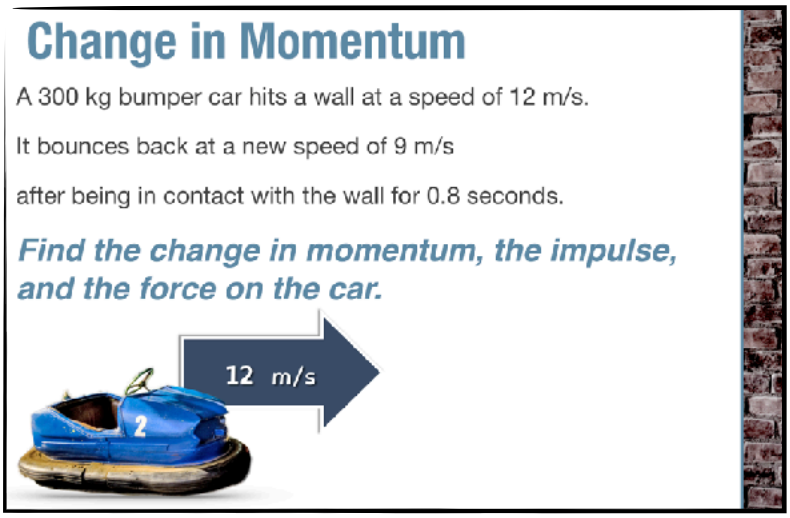
Symbol	Stands for..	Units	When/how to use the equation

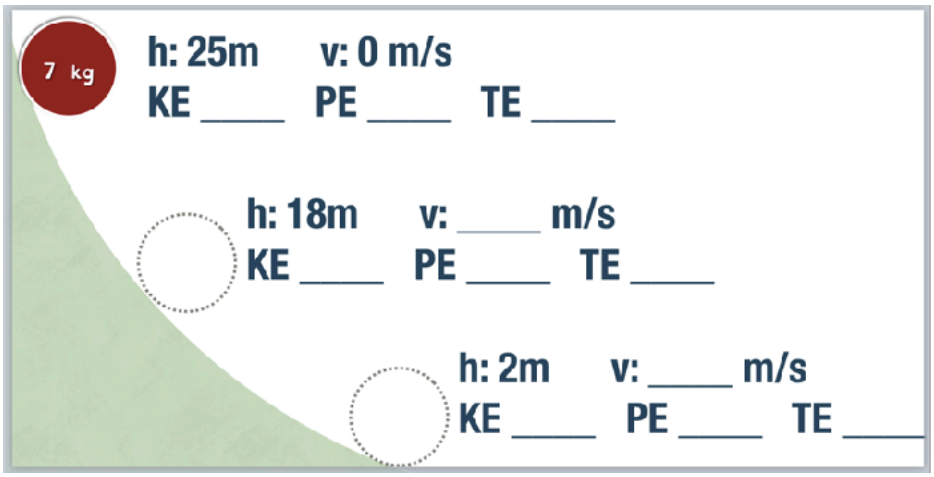
Explain: ***Conservation of Energy***

Explain: ***Conservation of Momentum***


Example 1a
Find the Final Velocity:
Perfectly Inelastic Collision
2.4
16
20
5
Mass A :
V_i = 2.4 m/s
m = 16 kg
Mass B :
V_i = - 20 m/s
m = 5 kg


18 m/s
325 kg
42 m/s
155 kg
2D
Collision
THE TWO VEHICLES HIT IN A PERFECTLY
INELASTIC
COLLISION


Change in Momentum
A 300 kg bumper car hits a wall at a speed of 12 m/s.
It bounces back at a new speed of 9 m/s
after being in contact with the wall for 0.8 seconds.
Find the change in momentum, the impulse, and the force on the car.
12 m/s
2


7 kg
h: 25m v: 0 m/s
KE ____ PE ____ TE ____
h: 18m v: ____ m/s
KE ____ PE ____ TE ____
h: 2m v: ____ m/s
KE ____ PE ____ TE ____