**Physics 30 – Lesson 1**

**Momentum – Collisions in One Dimension**

Possible 100 / 69

**Practice problems**

1)



2)



3)



**Assignment**

1) Momentum is the product of mass and velocity, while inertia is the mass of an object.

/2



2)

/3



3)

/3



4)

/3



b.

a.



5)

/6

6)



/4



7)



/7



Elastic? Inelastic?

Compare total initial and total final kinetic energies.



8)



/4



9)



/4

10)



/4



11)



/4



12)



/4



13)



/4



14)



/4



15)



/4



16) Since the collision between the bullet and the pendulum is inelastic kinetic energy is not conserved. Therefore the problem must be solved in two parts:

a. the swing up → energy

b. the collision → momentum

65 mm

/9



\*17) Speeds are relative to water



Boy

Bonus



/12



Girl







\*18)



Bonus





\*19)



bonus



/10

