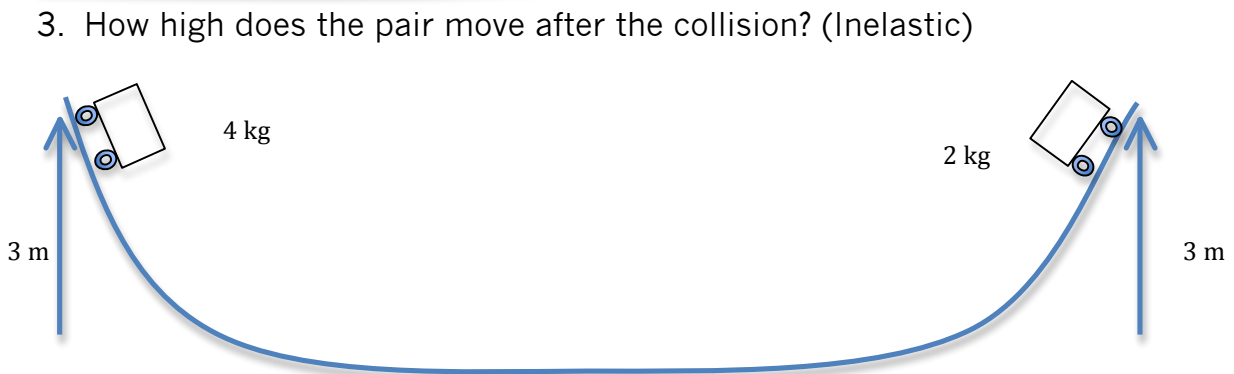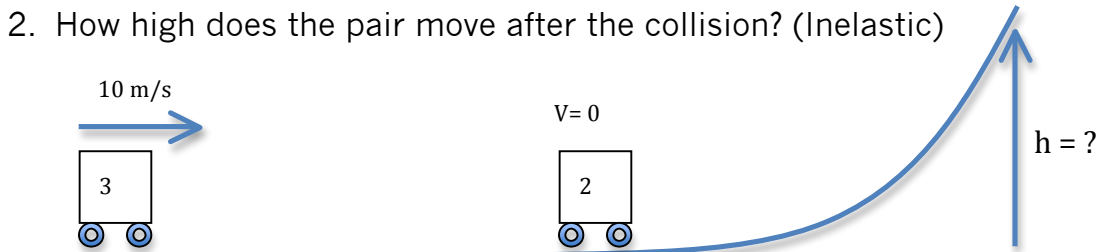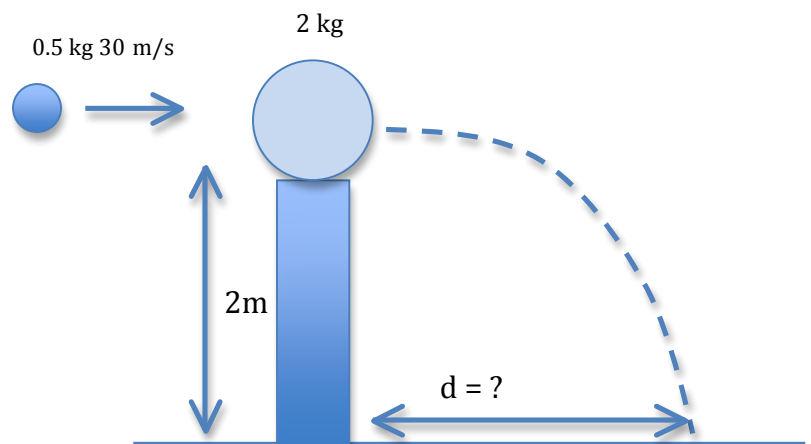# Momentum
Compound Problems

1. Find the final speed of the pair and the total energy lost in the collision. All are inelastic.
   a. A 2 kg cart moves at 8 m/s and strikes a 3 kg cart at rest.
   b. A 3 kg cart moving 6 m/s west and strikes a 5 kg cart moving 6 m/s east.
   c. A 4 kg cart moving a 2 m/s west strikes a 2 kg cart moving 4 m/s east.

2. How high does the pair move after the collision? (Inelastic)

10 m/s

V= 0

h = ?

3

2

3. How high does the pair move after the collision? (Inelastic)

4 kg

2 kg

3 m

3 m

4. If the pair in #2 moves 4 m up the hill after the collision, find the starting speed of the 3 kg cart.

5. Inelastic collision. Find d.

2 kg

0.5 kg 30 m/s

2m

d = ?

6. How far does the pair move after the collision?

6 m/s

| 2 |

| 3 |

μ = 0.3

7. A 0.1 kg bullet moving at 50 m/s hits a stationary 2 kg block but emerges on the other side with a speed of 20 m/s. Find the speed of the 2 kg block after the collision.