Conservation of momentum/energy

m = _____ kg **v = _____ m/sec**

Cart A with mass **m** hits cart B (mass 100 kg) from behind. Cart A is initially traveling to the right with a speed of **v** and cart B is initially at rest.

After the collision, cart A rebounds to the left with a speed of **v – 2.** Cart B will be moving to the right after the collision.

a) Find the initial momentum of cart A.

b) Draw a momentum diagram showing initial momentum vectors (with numerical values) of A and B.

c) Find the final momentum of cart A.

d) Draw a momentum diagram showing **final** momentum vectors (with numerical values) of A and B. Show the relative size of the momentum vectors (larger momenta are longer arrows).

final momentum of B: p_{fb} = _____

e) What is the final velocity of cart B?

f) How much heat is generated in the collision?