CHOOSE ANY TWO

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1. An _____ kg object experiences the impulse shown on the graph. It's original velocity was 20 m/s. Calculate its new velocity.

Choose a mass in the hundreds with no non-zero digits.

F (N)

10 20 30 40

t (s)

−200
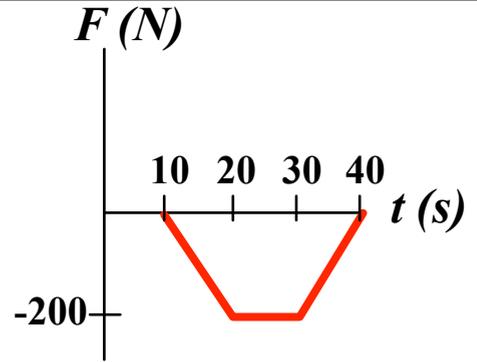
2.The _____ kg car rear-ends the 6,000 kg truck. The car was initially traveling at 25 m/s to the right. After the collision, the car's velocity is 5 m/s to the left. The truck was at rest at the start.

    a) Calculate the impulse delivered to the truck.
    b) Calculate the truck's velocity after the collsiion.

Choose a mass for the car that's in the low thousands with no non-zero digits.
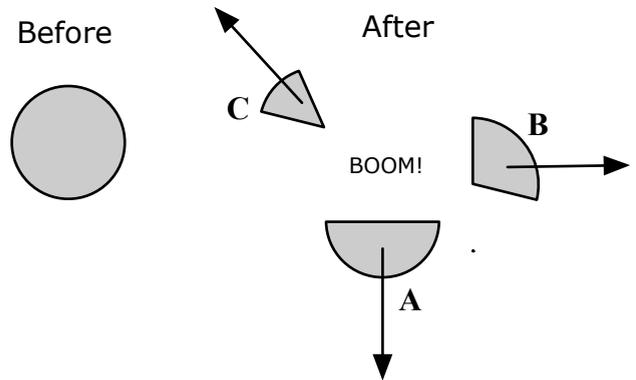
Before

After

Crash!
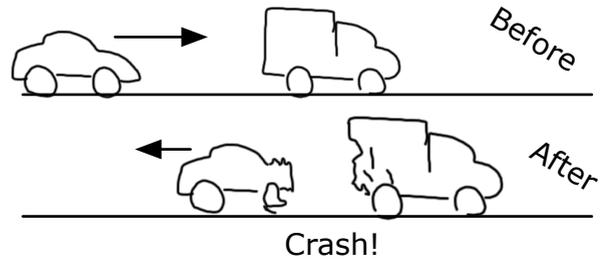
3. The object was at rest before the explosion.
After the explosion…
3 kg piece A is heading downward at 10 m/s.
2 kg piece B is heading to the right at ___ m/s.
Determine the velocity (speed & angle) of 1 kg piece C.

Choose a velocity for piece B that is a two digit number with both digits even.

Before

After

C

BOOM!

B

A

4. Pasco cart #1 (mass _____ kg) collides with Pasco cart #2 (1.5 kg). You can assume that the carts have very little friction. Cart #1's velcocity vs time graph is shown.

    a) At approximately what time did the collision occur?
    b) What was cart #1's change in velocity?
    c) What impulse was delivered to cart #2?
    d) Assuming cart #2 was initially at rest, what is its final velocity?

Pasco cart #1

v (m/s)

4

2

10 20 30 40

t (s)

−2

−4