Collisions and Momentum Name .....

Remember: momentum = mass x velocity velocity and momentum are **vectors** momentum is conserved

1. A trolley of mass 4kg is moving to the right at 1.5m/s. It collides with a stationary trolley of mass 2kg and they stick together.
    a. Draw a diagram showing the situation before the collision

    b. Draw a diagram showing the situation after the collision

    c. What is the total momentum before the collision?

    d. What is the total momentum after the collision?

    e. At what speed, and in what direction, do the two trolleys move after they have collided?

2. A lorry of mass 3500kg is moving at 12m/s. It collides with a car of mas 1200kg that is not moving, and they stick together. Calculate the speed they move at after the collision.

3. A trolley of mass 1.5kg is moving at 3m/s. It collides with a stationary trolley and they stick together. Both trolleys move at 1m/s after the collision. Find the mass of the trolley that was stationary.

4. A lorry of mass 5000kg is moving to the right at 12m/s. It collides with a car of mass 1000kg that is moving to the left at 5m/s. They stick together.
    a. Draw a diagram before the collision.

    b. Draw a diagram after the collision.

    c. What is the total momentum before the collision?

    d. What is the total momentum after the collision?

    e. At what speed, and in what direction, do the car and lorry move after the collision?