

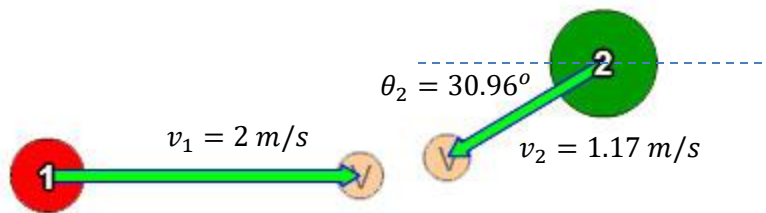
Collisions in 2D – Warm-Up & Learning

Name: _____ Date: _____

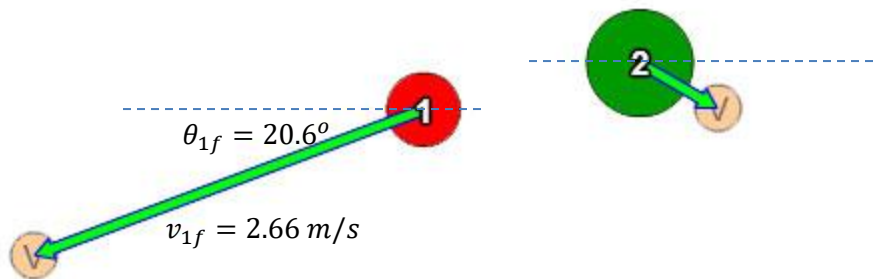
Collision Applet: <http://bit.ly/1qi21XT>

Two balls undergo an elastic collision. The initial conditions of the two balls is given in the diagram as is the final state of ball 1 ($m_1 = 0.5\text{kg}$). Calculate the final state (velocity, direction and momentum) of the ball 2 ($m_2 = 1.5\text{kg}$). Check your work with the applet.

BEFORE:



AFTER:



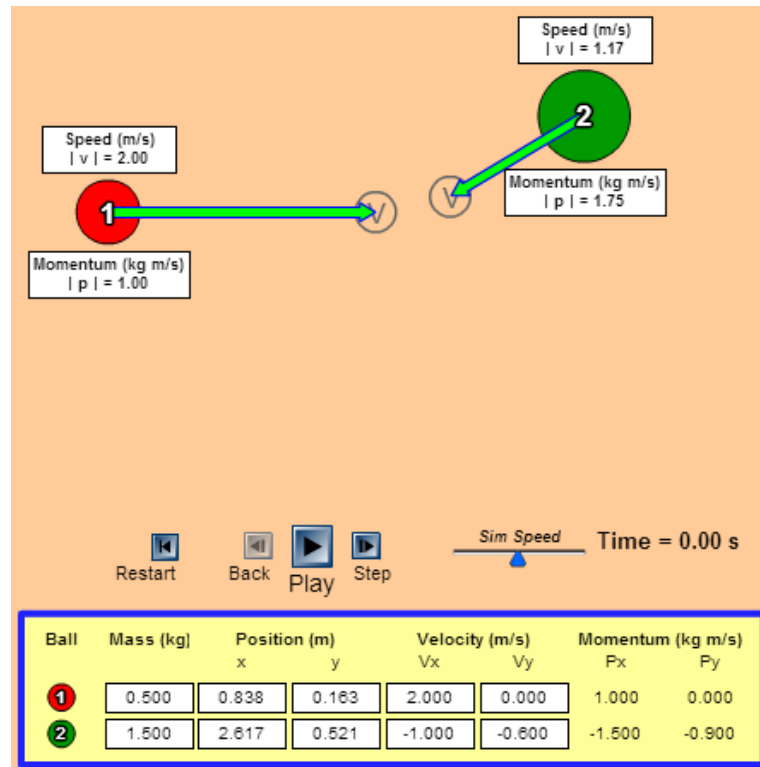
Method 1:

1. Write the horizontal and vertical components of the momentum to find the final state of ball 2.

Method 2:

1. Use the matrix method to solve for the final state of ball 2.

Before the collision:



After the collision:

