

Our test:

Took the starting and end velocities of two carts as they moved toward each other and after they collided (inelastic so they stuck together).

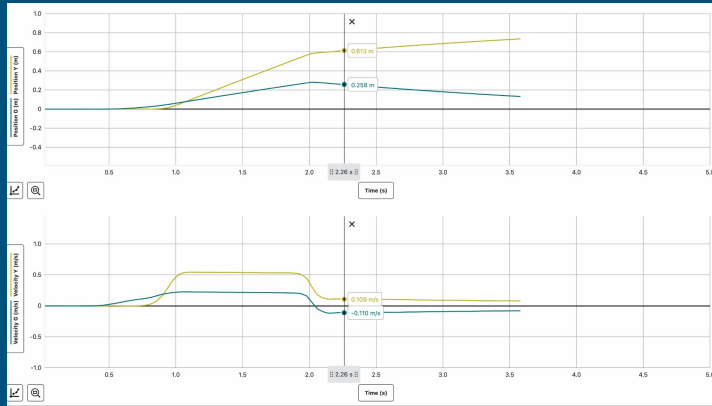
Used the velocities and mass values to calculate starting net momentum and end net momentum. Expect $P_i = P_f$

Also used the velocities and mass values to calculate starting KE and end KE. Expect $KE_i > KE_f$

Our Table:

m1 (kg)	v1 (m/s)	m2 (kg)	v2 (m/s)	vf (m/s)	expected v (m/s)	initial KE (J)	Final KE (J)
0.3	0.644	0.3	0	0.31	0.322	0.062	0.029
0.425	0.512	0.675	0	0.195	0.198	0.056	0.021
0.425	0.603	0.675	-0.392	0	-0.008	0.129	0.000
0.425	0.526	0.55	-0.207	0.11	0.113	0.071	0.006

Graph:



Conclusion:

We concluded through our testing the momentum is conserved in perfectly inelastic collisions. Using the equation for momentum, we plugged in values recorded by the software, and the initial and final momentum values were equal to each other. Using the equation for kinetic energy (plugging in mass and velocity), we also determined that the final kinetic energy in each test was less than the initial kinetic energy.