Experiment 3: Collisions Part 3B– Linear Collisions Between Two Objects

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| Name | Partner | | Date |
| Sonic Ranger 1 Calibration (Gain and Offset): | | Sonic Ranger 2 Calibration (Gain and Offset): | |
| Glider colliding with a stationary glider using a spring   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Trial | Mass 1  (kg) | Mass 2  (kg) | Initial Momentum  (kg m/s) | Final Momentum  (kg m/s) | Change in Momentum  (kg m/s) | | 1 |  |  |  |  |  | | 2 |  |  |  |  |  | |  |  |  |  |  |  |      |  |  |  |  | | --- | --- | --- | --- | | Trial | Initial Kinetic Energy  (J) | Final Kinetic Energy  (J) | Change in Kinetic Energy  (J) | | 1 |  |  |  | | 2 |  |  |  | |  |  |  |  | | | | |
| Glider colliding with (and sticking to) a stationary glider using velcro   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Trial | Mass 1  (kg) | Mass 2  (kg) | Initial Momentum  (kg m/s) | Final Momentum  (kg m/s) | Change in Momentum  (kg m/s) | | 1 |  |  |  |  |  | |  |  |  |  |  |  |      |  |  |  |  | | --- | --- | --- | --- | | Trial | Initial Kinetic Energy  (J) | Final Kinetic Energy  (J) | Change in Kinetic Energy  (J) | | 1 |  |  |  | |  |  |  |  | | | | |

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| What was the ratio of the final to initial kinetic energy ?    How did this result compare to the value that is predicted for a completely inelastic collision with a stationary target (as in your prelab question)? | | |
| Glider colliding with a stationary glider using rubber bumper   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Trial | Mass 1  (kg) | Mass 2  (kg) | Initial Momentum  (kg m/s) | Final Momentum  (kg m/s) | Change in Momentum  (kg m/s) | | 1 |  |  |  |  |  | |  |  |  |  |  |  |      |  |  |  |  | | --- | --- | --- | --- | | Trial | Initial Kinetic Energy  (J) | Final Kinetic Energy  (J) | Change in Kinetic Energy  (J) | | 1 |  |  |  | |  |  |  |  | | | |
| Write a paragraph that summarizes your important results | | |