Experiment 3: Collisions Part 3A– Linear Collisions With a Fixed Object

|  |  |  |
| --- | --- | --- |
| Name | Partner | Date |
| Glider Mass, m: | Sonic Ranger Calibration (Gain and Offset):  Gain = 172.2 m/s Offset = 1.90 m | |
| Force Probe Calibration (Gain and Offset):  Gain = -12.54 N/V Offset = 0.0045 N | |
| Data for glider colliding with different object types   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Object | Initial Momentum  (kg m/s) | Final Momentum  (kg m/s) | Impulse  (N s = kg m/s) | Momentum Change  (kg m/s) | Coefficient of Restitution | | Spring |  |  |  |  |  | | Rubber Bumper |  |  |  |  |  | | Clay |  |  |  |  |  | | | |
| Show an example of how you calculate the momentum change (and uncertainty) | | |
| Show an example of how you compare the momentum change to the impulse using the difference method. | | |
| Write a short paragraph that summarizes whether your data supports the principle that the change in momentum of the glider is equal to the impulse it experiences in the collision. | | |

Experiment 3: Collisions Part 3A– Linear Collisions With a Fixed Object

|  |  |  |
| --- | --- | --- |
| Name | Partner | Date |
| Write a statement comparing the coefficients of restitution for the different collision types. | | |
| Attachments:   * Graphs showing position, momentum, and force versus time for the simulated collision in VPython. | | |