Experiment 2: Springs and Oscillations Part 2C – Damped Harmonic Motion

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Partner | | Date |
| Spring ID Number:  A | Spring constant, from last week : | | |
| Measurements for characterizing mass hangers   |  |  |  | | --- | --- | --- | | Disk | Mass | Radius | |  |  |  | |  |  |  | |  |  |  | |  |  |  | |  |  |  | | | Rough sketch of position vs time for oscillating mass | |
| Fit parameters for underdamped oscillator model   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Disk |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | | | | |
| Damping coefficient dependence on disk size   |  |  |  |  | | --- | --- | --- | --- | | Disk |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |   Describe, using your graph results, specifically how the damping coefficient depends on the disk size. | | | |

Experiment 2: Springs and Oscillations Part 2C – Damped Harmonic Motion

|  |  |  |
| --- | --- | --- |
| Name | Partner | Date |
| Describe (in general terms) how the angular frequency varies (or doesn’t) with the amount of damping. | | |
| Describe whether your simulation displays the same behavior for different size disks that you have observed experimentally. | | |
| Attachments:   * Annotated graphs showing measured position vs time for damped oscillator, with best fit. * Annotated graph showing simulated position vs time for damped oscillator. | | |