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| |  |  |  |  | | --- | --- | --- | --- | | **PH 201 Pre-Lab 14** | **Semester Wrap-Up** | **Name** |  | | | | | | |
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| Consider the work in a spring. The work done by a spring that is stretched or compressed is given by the relationship | | | | | |
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|  | | | | | |
| W is work in joules (J), k is the spring constant in units of (N/m), and x is the stretch or compression of the spring in units of meters (m). | | | | | |
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| Part I – Linearize by powers: Consider an analysis with Work (W) plotted on the y-axis and the stretch of the spring squared (x2) on the x-axis. | | | | | |
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| 1. What are the units for: | | | | | |
|  | | | | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **x-axis** |  |  | **y-axis** |  | |  |  |  |  |  | | **Slope** |  |  | **y-intercept** |  | | | | | | |
|  | | | | | |
| 2. What should the Theoretical slope and y-intercept of this graph should be: | | | | | |
|  | | | | | |
|  | | | | | |
| **Slope** |  |  | **y-intercept** |  |
|  | | | | | |
| 3. If a plotted trendline of the graph is | | | | | |
|  | | | | | |
| Extract the spring constant from this. | | | | | |
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| 4. What does the y-intercept for this trendline tell us? | | | | | |
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| **-> Over->** | | | | | |
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| Part II – Linearize by logarithms: Consider an analysis with Ln (W) plotted on the y-axis and  Ln (x) on the x-axis. | | | | | |
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| 5. What are the units for: | | | | | |
|  | | | | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **x-axis** |  |  | **y-axis** |  | |  |  |  |  |  | | **Slope** |  |  | **y-intercept** |  | | | | | | |
|  | | | | | |
| 6. What should the Theoretical slope and y-intercept of this graph should be: | | | | | |
|  | | | | | |
|  | | | | | |
| **Slope** |  |  | **y-intercept** |  |
|  | | | | | |
| 7. If a plotted trendline of the graph is | | | | | |
|  | | | | | |
| Extract the spring constant from this. | | | | | |
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