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| **Worksheet for Lab on Waves** | **Name** |  |
|  |  |  |
|  | **Date** |  |

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|  | **Partner #1** |  |
|  |  |  |
|  | **Partner #2** |  |

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| **Items to be turned in:** |
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| **Waves on a String Experiment:** |
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| **1. Data Table #1:** |
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| --- | --- | --- | --- | --- | --- | --- |
| **String Mass (kg)** | **=** | $$g \left(^{m}/\_{s^{2}}\right)$$ | **=** | **Nominal Frequency (Hz)** | **=** |  |
|  |  |  |  |  |  |  |
| **String Length (m)** | **=** | $$ρ\_{string}\left(^{kg}/\_{m}\right)$$ | **=** | **Length between End Nodes (m)** | **=** |  |
| **# Anti-Nodes** | **Mass** | **Tension** | **Wavelength** |  |  |  |
| **N** | **(kg)** | **(N)** | **(m)** |  | **Ln(T)** | **Ln(λ)** |
| **2** |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |
|  |  | **From Plot b** | **=** | **Calculated Frequency (Hz)** | **=** |  |
|  |  |  |  |  |  |  |
|  |  |  |  | **%error** | **=** |  |

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| **2. Properly Formatted ln(λ) vs ln(T) plot** |
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| **Waves in an Air Column** |
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| **3. Data Table #2** |
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| --- | --- | --- | --- | --- |
| $$v\_{sound} \left(^{m}/\_{s}\right)$$ | **=** |  |  |  |
|  |  |  |  |  |
| **Nominal Freq (Hz)** | **=** |  | **Nominal Freq (Hz)** | **=** |
|  |  |  |  |  |
| **Air Columns** | **Height of Air (m)** |  | **Air Columns** | **Height of Air (m)** |
| $$L\_{a}$$ |  |  | $$L\_{a}$$ |  |
| $$L\_{b}$$ |  |  | $$L\_{b}$$ |  |
| $$L\_{c}$$ |  |  | $$L\_{c}$$ |  |
| $$L\_{d}$$ |  |  | $$L\_{d}$$ |  |
| $$L\_{e}$$ |  |  | $$L\_{e}$$ |  |
|  |  |  |  |  |
| **Wavelengths** | **Wavelengths (m)** |  | **Wavelengths** | **Wavelengths (m)** |
| $$λ\_{a}$$ |  |  | $$λ\_{a}$$ |  |
| $$λ\_{b}$$ |  |  | $$λ\_{b}$$ |  |
| $$λ\_{c}$$ |  |  | $$λ\_{c}$$ |  |
| $$λ\_{d}$$ |  |  | $$λ\_{d}$$ |  |
| $$λ\_{ave}$$ |  |  | $$λ\_{ave}$$ |  |
|  |  |  |  |  |
| **Calculated Frequency (Hz)** | **=** |  | **Calculated Frequency (Hz)** | **=** |
|  |  |  |  |  |
| **%error** | **=** |  | **%error** | **=** |

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