|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Expectation** | **✓ = 1 pts** |
|  |  |  |  |
| 1. Cantilever Beam
 | 1 | Fitted Plot is included, clear, and complete: with data as points, axes labeled with quantity and units, a fitted line and fitted equation to 3 significant figures.  |  |
| 2 | Residual Plot included, clear, and complete: axes labeled with quantity and units, presented as a scatter plot or bar graph. |  |
| 3 | Clear and complete answer to: a) Does a linear fit look appropriate to this data? Including clear and logical reasons for choice based on plots  |  |
| 4 | Clear and complete answer to: b) What are the units on the slope (the m parameter)? |   |
|  |  |  |  |
| 1. Three Fitting Problems
 | 5 | Problem clearly presented with clear & complete Table 1, clear identification of which graphs are included, clear pastes of the graphs into the document. |  |
| 6 | 1. Wind Power Generation (*Power* vs. *Wind*): Correct linear fit of the data (whether appropriate or not), Clear & reasonable justification of answer to question.
 |  |
| 7 | 1. LEGO Level Gage Calibration (*Height* vs. *Reading*): Correct linear fit of the data (whether appropriate or not), Clear & reasonable justification of answer to question.
 |  |
| 8 | 1. LEGO Flowmeter Calibration (Flow vs. Read): Correct linear fit of the data (whether appropriate or not), Clear & reasonable justification of answer to question.
 |  |
| 9 | Fitted Plot is included, clear, and complete: with data as points, axes labeled with quantity & units, a fitted line & fitted equation to 3 significant figures.  |  |
| 10 | Residual Plot included, clear, and complete: axes labeled with quantity and units, presented as a scatter plot or bar graph. |  |
|  |  |  |  |
| 1. Function Discovery Graphs
 | 11 | Clear and complete presentation of the problem (Program Development Worksheet is not required) |   |
| 12 | Script with clear comments that will produce three graphsGraphs can be separated using figure command or plotted as subplots |   |
| 13 |   |
| 14 | Linear Graph – properly and automatically formatted (via the script) including data plotted as points, appropriate axis scaling, and axis labels with appropriate units |   |
| 15 | Semilog y Graph – properly and automatically formatted (via the script) including data plotted as points, appropriate axis scaling, and axis labels with appropriate units |   |
| 16 | Log-Log Graph – properly and automatically formatted (via the script) including data plotted as points, appropriate axis scaling, and axis labels with appropriate units |   |
| 27 | A Model Identified by the model name (linear, exponential or power) not simply the graph name (semilog, loglog).  |   |
| 18 |   |
| 19 | Clear explanation of why above model was chosen based on the three graphs (discussion of linear residuals for linear case may be included but is not required) |   |
| 20 |   |