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|  | **Area** | **Expectation** | **✓ = 1 pts.** |
|  | **Acceleration data Practice Script** | |  |
| 1 | **Script** | Script included with steps numbered, labeled and in a logical order |  |
| 2 | Clear comments included |  |
| 3 | **Import/ time** | 1) Script imports acceleration data (.csv file) Data in structure properly addressed (name.data matrix) |  |
| 4 | 2) Time Vector Analysis including: showing the first 21 times, the first 20 intervals & the average sampling frequency |  |
| 5 | **Stats** | 3) Completes basic descriptive statistics (mean, std, min, max) for multiple time subsets of the data using reshape |  |
| 6 | 6) Uses analyze1.m to prepare a frequency analysis graph |  |
| 7 | **Find** | 4) Finds & displays: location of values within 10% of the maximum |  |
| 8 | 4) Finds & displays: Magnitude of values with n 10% of the maximum |  |
| 9 | **Calc.** | 5) Calculates the total g vector using array calculations (print out optional) |  |
| 10 |  |
|  |  |  |  |
|  | **Trapezoid Rule Integration** | |  |
| 11 | **Set up** | Problem clearly laid out using Program Development Worksheet  Goal of program presented. Inputs & Outputs for program listed (1-3) |  |
| 12 | Worksheet step 4 includes: a clear plan for the code (steps or a flow chart) & hand calculation of the integral using a pair of short test vectors (4 or more elements each) |  |
| 13 | Program includes clear introductory comments the form a useful help file |  |
| 14 | Code for a function provided with comments listing variables, and program logic |  |
| 15 | **Program Code** | Code inputs are: a data vector and a time vector |  |
| 16 | Vector addressing used to offset vectors |  |
| 17 | Correct calculation of trapezoid (or another numerical integration) rule for each interval in input vectors |  |
| 18 | Vector sum to determine total integral. |  |
| 19 | **Validation** | Program run with made up data and output of area vector shown (can be abridged) with values compared to hand calculation |  |
| 20 | Program run with acceleration data and output of total area presented  (no hand calculation for total area needed) |  |