Small Group Activity - Help each other complete the estimate for computing a million digit square root of 2

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Activity Kind

Small group exercise

Purpose

The purpose of this exercise is to enhance your tools to support the use of measured values with error terms.

Pre-requisite

Students are expected to have completed the Individual Research - Time to compute square root of 2 to roughly 1 million significant digits

Tasking

The members of the small group should compare their results with one another. If the values are not roughly the same, get help from the mentor.

As each of the following are perform, each member of the group should be taking notes into their ENB that explains what they are doing, what results are produced, and what it means.

Each member of the group should enhance their personal Excel spreadsheets by extending row 1 from the cell G1 through cell L1 with the values from 32000 to 1024000.

Rows 21 and 24 are ratios and they should stabilize as you move from column C to the right with values in the range between 4 and 5. It not, get help from your mentor.

Compute the average of the ratios in row 21, ignoring the left most item. Assume that this average ratio is what would be produced if you continued to do the experiment that produce the first five columns of data.

Place the equation =F20*<ratio> into the cell G20, where “<ratio>” is the average ratio you have just computed. Place the equation =G20*<ratio> into the cell H20, again where “<ratio>” is the average ratio you have just computed. Follow this same pattern filling in the cells from I20 up through L20.

The value in L20 is an extrapolated estimate of the number of milliseconds requied to compute the square root of two to the number of significant digits listed in row 1 for that column. Use excel to compute the number days required.

Be sure your ENB is current!

Deliverable

Students are responsible for producing and posting their notes and this Excel spreadsheet in their ENB as evidence that they performed this task as required.

Submission

Each student must produce and submit your ENB for the day.