|  |  |
| --- | --- |
| **Lines of Best Fit on TI-Nspire CAS**YEAR 10 |  |

TASK: *Please refer to the student worksheet for questions.*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. The table gives data relating the number of oil changes per year to the cost of car repairs. Plot the data with the number of oil changes on the horizontal axis.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Oil Changes Per Year | 3 | 5 | 2 | 3 | 1 | 4 | 6 | 4 | 3 | 2 | 0 | 10 | 7 |
| Cost of Repairs | 300 | 300 | 500 | 400 | 700 | 400 | 100 | 250 | 450 | 650 | 600 | 0 | 150 |

|  |  |
| --- | --- |
| *Open New Document. Add 3: Lists & Spreadsheet (Ctrl I)**Insert names in list A: change in list B: cost* |  |
| *Then Add 5: Data & Statistics. Click on each axes to add variables. Then Menu, 4: Analyze, 2: Add Movable Line. And 7: Residuals, 1: Show Residual Squares. Rotate and translate the line to minimise the sum of the squares.**Make the students play a game who can get the smallest sum of residual squares.* |  |

|  |  |
| --- | --- |
| *Remove Movable Line.**Menu, 4: Analyze, 6:Regression, 1:Show Linear (mx+b).**Find the least squares regression line.* *Check the sum of residual squares for this line.* |  |

|  |  |
| --- | --- |
| *Insert a new page 2: Add Graphs & Geometry. Copy the regression equation into f1(x). Use Analyze Graph to find the x-intercept. Insert a Calculator page.*  |  |
| *Find f1(0) for a y-intercept, f1(4) and solve for zero to get x-intercept again. Ctrl G to hide the entry line.* |  |

|  |
| --- |
|  |
|  |

 |