2018 SMM4 Week 4 Investigation

It is possible to seasonally adjust time series for other than the usual four seasons. A restaurant wishes to study its customer patterns on a daily basis. In this case a 'season' is a single day and there are 7 seasons in a weekly cycle (the restaurant is not open on Sunday). The data collected is shown in the table below and represents the revenue each day.

Season	Week 1	Week 2	Week 3	Week 4	Week 5
Monday	1036	1089	1064	1136	1042
Tuesday	1103	1046	1085	1207	1156
Wednesday	1450	1324	1487	1378	1408
Thursday	1645	1734	1790	1804	1789
Friday	2078	2204	2215	2184	2167
Saturday	2467	2478	2504	2526	2589

Use the spreadsheet "Seasonal Adjustment - Restaurant' on HawkerMaths to deseasonalise the data.

Print the spreadsheet along with the graph.

Does the deseasonalised data show a trend?

Use the equation of the linear regression line to predict revenue of Thursday of Week 6. To do this;

(i) Add a column for Week 6

(ii) Use the equation that Excel provides to calculate the result.

Hint There are 30 numbers (revenue) which explains the 1 to 30 on the graph. You will need to use a value of x greater than 30.

You will need to modify the spreadsheet by adding columns and rows. Make sure you copy the formulas into the new cells.